CATALOGUE

OF THE

UNITED STATES ARMY MEDICAL MUSEUM.

PREPARED UNDER THE DIRECTION OF THE SURGEON GENERAL, U. S. ARMY.

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OF

THE SURGICAL SECTION

OF THE

United States Army Medical Museum.

PREPARED UNDER THE DIRECTION OF THE SURGEON GENERAL, U. S. ARMY,

By ALFRED A. WOODHULL, Assistant Surgeon and Brevet Major, U. S. Army.

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1866.

BIBLIOTHECA
REGIA
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CORRIGENDA.

Page 7, spec. 1568, for Coule read *Coale.*
Page 8, spec. 2744, for J. K. Baldwin read *L. K. Baldwin.*
Page 11, spec. 3863, for Pullen read *Paullin.*
Page 13, spec. 95, for J. B. Brinton read *J. H. Brinton.*
Page 15, spec. 4075, for B. A. c. read B. B. d.
Page 15, spec. 1723, for A. W. Fryer read *Walter Tryon.*
Page 16, spec. 2998, for Connor read *Conner.*
Page 18, specs. 1292, 1297, 1301, for Connor read *Conner.*
Page 19, spec. 2679, for George D. Mursick read *George A. Mursick.*
Page 19, spec. 1739, for E. P. Bigelow read *C. P. Bigelow.*
Page 23, spec. 3362, for 21st May read 21*st June.*
Page 24, spec. 4256, for J. D. Lewis read *J. B. Lewis.*
Page 24, spec. 3040. The bullet had receded at the second operation and was not found until after death.
Page 26, spec. 1293, for Connor read *Conner.*
Page 26–27, spec. 1734, for F. H. Stillwell read *T. H. Stillwell.*
Page 34, spec. 3684, for N. S. Stickney read *A. L. Stickney.*
Page 35, spec. 2970, for Homminston read *Homiston.*
Page 41, twenty-first line from above, for 28 read 27.
Page 45, spec. 3902, for XVIII. I. read *XVIII. II.*
Page 45, spec. 2989, Connor read *Conner.*
Page 46, thirtieth line from above, before 3257, omit *I.*
Page 47, spec. 85 for T. P. Arthur read *J. P. Arthur.*
Page 49, spec. 3467, for Washington read *Baltimore*, and for J. W. Fay read *G. W. Fay.*
Page 50, spec. 564, for Bugler J. S. read Private J. W. S., and for 2d Pennsylvan a Cavalry read 82d *Pennsylvania.*
Page 51, spec. 4090, for Minor read *Miner.*
Page 52, ninth line from below for c. DISLOCATIONS read d. RESULTS OF OPERATIONS.
Page 52, spec. 4246, for c. 1. read d. 1.
Page 61, spec. 3349, add *Contributed by Surgeon Edwin Bentley, U. S. Vols.*
Page 61, spec. 1630, for Roberts read *Robarts.*
Page 62, thirteenth line from above, after 4092, for V read *IV.*
Page 62, spec. 3985, for XXIX read *XIX.*
Page 67, spec. 150, for W. Dusenbury read *H. Dusenbury.*
Page 68, spec. 2255, add *Contributed by Surgeon Edwin Bentley, U. S. Vols.*
Page 71, spec. 2411, omit 20.
Page 72, spec. 3823, for Paulin read *Paullin.*
Page 75, spec. 3376, for M. Leon Hammond read *W. Leon Hammond.*
Page 75, spec. 3843, for Skinner read *J. C. Shimer.*
Page 76, spec. 2183, for Matlock read *Matlack.*
Page 92, spec. 2323, for W. A. Meagher read *W. O'Meagher.*
Page 92, spec. 111, for C. A. Chamberlain read *C. N. Chamberlain.*
Page 95, spec. 3869, for W. L. Adams read *W. S. Adams.*
Page 96, spec. 1188, for F. S. Dibble read *F. L. Dibble.*
Page 99, spec. 1925, for Hackenburg read *Hachenburg.*
Page 103, spec. 4282, for 20th read 209th.
Page 113, spec. 78, for 9th read 7th.
Page 116, in classification of V. B. B. read c. DISLOCATIONS, d. EXCISIONS, e. AMPUTATIONS.
Page 116, eighth line from below, for c. read *d.*
Page 116, spec. 152, for c. 1 read *d.* 1.
Page 122, spec. 66, for McDonald read *McDonnell.*
Page 122, spec. 3820, for G. E. Mitchell read *T. E. Mitchell.*
Page 128, spec. 690, omit *Acting.*
Page 131, spec. 3402, before *attempt* insert *no.*
Page 131, spec. 2190, for Hackenburg read *Hachenburg.*
Page 143, spec. 478, for 59th read 51st.
Page 149, spec. 3506, for W. R. Pounds read *R. W. Pounds.*
Page 153, spec. 15, add *Contributed by Acting Assistant Surgeon D. W. Cheever.*
Page 159, spec. 4249, for N. D. Benedict read *M. D. Benedict.*
Page 160, running title, for VI read *VII.*
Page 160, spec. 1929, for Matlock read *Matlack.*
Page 161, spec. 786, James read *Janes.*
Page 162, spec. 775, for James read *Janes.*
Page 167, spec. 2950, for Minis read *Morris.*
Page 167, spec. 2975, for A. T. Sheldon read *A. F. Sheldon.*
Page 170, spec. 29, for D. H. Rankin read *D. N. Rankin.*
Page 184, spec. 3666, for Sharpley read *Shapley.*
Page 191, spec. 2794, for William F. Keating read *William V. Keating.*
Page 193, spec. 3621, for Lopsley read *Lapsley.*
Page 204, spec. 554, for Alfred G. Gibbs read *Alfred S. Gibbs.*
Page 204, spec. 3617, for S. C. Cummins read *L. C. Cummins.*
Page 207, spec. 1797, for W. L. Bradley read *W. H. Bradley.*
Page 208, spec. 1928, for Matlock read *Matlack.*
Page 211, spec. 1228, for McCay read *McCoy.*
Page 219, spec. 2089, for J. C. H. Happersett read *J. C. G. Happersett.*
Page 227, spec. 2901, for U. Sweet read *O. P. Sweet.*
Page 236, spec. 86, for T. P. Arthur read *J. P. Arthur.*
Page 239, spec. 2309, for T. Walsh read *Joseph Walsh.*
Page 248, spec. 81. The operator on 12th September, was Acting Assistant Surgeon J. C. Morton; the operator (at the hip joint) of 19th January, was Acting Assistant Surgeon John H. Packard; the external iliac was tied by Dr. Morton; the specimen was contributed by Assistant Surgeon Clinton Wagner, U. S. Army.
Page 255, spec. 2043, for discharged the service read *died, Alexandria.*
Page 256, spec. 475, for 59th read 51st.
Page 257, spec. 4110, for J. J. Jamison read *J. S. Jamison*
Page 257, spec. 1893, for left read *right.*
Page 257, spec. 2442, for 3d read 10th.
Page 257, spec. 2966, for Thompson read *Thomas.*
Page 257, spec. 1685, for W. S. Osborn read *W. F. Osborn.*
Page 260, spec. 134, for H. C. Mulford read *W. C. Mulford.*
Page 266, spec. 2717, for W. S. Herriman read *W. L. Herriman.*
Page 268, spec. 1970, for Kœpner read *Kœrper.*
Page 272, spec. 3671, for A. F. B. Maury read *F. F. Maury.*
Page 272, spec. 3828, for W. R. McCausland read *W. B. McCausland.*
Page 275, spec. 1964, for Kœpner read *Kœrper.*
Page 281, spec. 1042, for S. L. W. read *L. L. M.*
Page 285, spec. 2490, for W. H. Dean read *H. M. Dean.*
Page 287, spec, 83, for Alexandria read *Washington.*
Page 291, spec. 4275, for J. D. Lewis read *J. B. Lewis.*
Page 292, spec. 1279, for J. E. Freeman read *J. A. Freeman.*
Page 293, spec. 1277, 1278, for J. E. Freeman read *J. A. Freeman.*
Page 298, spec. 3165, after surgeon insert *Henry.*
Page 299, spec. 1963, for Koepner read *Kœrper.*
Page 302, spec. 644, for T. I. C. read *T. G. C.*
Page 302, spec. 660, for J. L. Dorr read *J. C. Dorr.*
Page 303, spec. 669, in J. A. Neill omit *A.*
Page 306, spec. 1971, for Kœpner read *Kœrper.*
Page 311, spec. 2122, for 101st read 106th.
Page 311, spec. 2376, for F. W. Nichols read *C. H. Nichols.*
Page 321, spec. 2280, after Wishart, for 148th read 140th.
Page 322, spec. 2315, for C. H. Chamberlain read *C. N. Chamberlain.*
Page 327, spec. 1069, omit reference to 1067, XXV. A. B. b. 149.
Page 332, spec. 4707, omit *G* before *Glennan.*
Page 333, spec. 1974, for Rœper read *Kœrper.*
Page 339, spec. 2831, for Reicker read *Riecker.*
Page 344, spec. 51, for McKenzie read *Mackenzie.*
Page 347, spec. 3817, for T. G. Mitchell read *T. E. Mitchell.*
Page 347, spec. 453, for J. P. Peabody read *J. H. Peabody.*
Page 348, spec. 569, before Assistant insert *Acting.*
Page 355, spec. 3372, for R. S. Stanford read *R. L. Stanford.*
Page 359, spec. 3213, for W. R. Schofield read *W. K. Schofield.*
Page 372, spec. 692, for J. C. Semple read *J. E. Semple.*
Page 377, spec. 1914, for D. M. Dill read *D. McDill.*
Page 377, spec. 1071, omit reference to 1067, XXV. A. B. b. 149.
Page 379, spec. 1545, for 26th read 29th.
Page 389, spec. 2874, for Skinner read *Shimer.*
Page 394, spec. 79, for S. H. Storrow read *S. A. Storrow.*
Page 401, spec. 1975, for Kœpner read *Kœrper.*
Page 402, spec. 461, for Philadelphia read *Baltimore.*
Page 415, spec. 470, for J. H. Hodgen read *J. T. Hodgen.*
Page 421, spec. 540, for J. E. Prince read *J. P. Prince.*
Page 428, spec. 3816, for J. E. Mitchell read *T. E. Mitchell.*
Page 432, spec. 687, for J. C. Semple read *J. E. Semple.*
Page 432, spec. 2715, for H. C. Dodge read *L. C. Dodge.*
Page 433, spec. 62, for Currier read *Carrier.*
Page 455, spec. 1742, for J. P. Wyer read *J. C. Wyer.*
Page 477, spec. 2117, for 101st read 106th.
Page 478, spec. 2119, for 101st read 106th.
Page 480, spec. 2014, for H. G. Elliott read *W. G. Elliott.*
Page 507, spec. 1070, 1068, omit reference to 1067, XXV. A. B. b. 149.
Page 543, spec. 3479, for arm read *forearm.*
Page 543, spec. 2959, for forearm read *arm.*
Page 568, spec. 4191, for E T. Schafhirt read *E. F. Schafhirt.*
Page 569, fourth line from above, for L. read *S.*
Page 576, seventh line from above, and second and third lines from below, for Rouse read *Ruoss.*
Page 576, eighth line from above, for S. T. read *E. F.*
Page 576, twenty-first line from below, for Honston read *Housten.*
Page 576, thirty-third line from below, for C. read *E.*
Page 588, spec. 4503, for 2d March, 1863, read 2*d March*, 1864.
Page 593, spec. 4514, for Guy G. Hutton read *George Hutton.*
Page 596, third line from above, for H. A. Ducachet read *H. W. Ducachet.*
Page 597, spec. 2723, for 1863 read 1862.
Page 602, spec. 4486, for G. E. Fuller read *S. E. Fuller.*
Page 613, spec. B. B. d. 177, **728** read **2728.**
Wherever Mosely occurs read *Moseley.*

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I. INJURIES AND DISEASES OF THE CRANIUM.

- **A.** Gunshot Injuries of the Cranial Bones.
  - **A.** Contusions and Partial Fractures.
    - a. Primarily fatal.
    - b. Operated upon by trephining.
    - c. Secondarily fatal without an operation.
    - d. Sequestra removed.
    - e. Other cases.
  - **B.** Penetrating Fractures.
    - a. Primarily fatal.
    - b. Operated upon by the removal of fragments.
    - c. Operated upon by trephining.
    - d. Secondarily fatal without an operation.
    - e. Other cases.
  - **C.** Perforations of the Cranium.
    - a. Primarily fatal.
    - b. Operated upon.
    - c. Secondary results without an operation.

A′. A List of Specimens Illustrating Contre-coup After Gunshot.

- **B.** Injuries of Cranial Bones not caused by Gunshot.
  - **A.** Incised and Punctured Wounds.
    - a. Primarily fatal.
    - b. Operated upon by the removal of fragments.
    - c. Operated upon by trephining.
    - d. Secondary results without an operation.
  - **B.** Contusions and Partial Fractures.
    - a. Primarily fatal.
    - b. Operated upon.
    - c. Secondarily fatal without an operation.
    - d. Sequestra removed.
  - **C.** Fractures with Depression.
    - a. Primarily fatal.
    - b. Operated upon by the removal of fragments.
    - c. Operated upon by trephining.
    - d. Secondarily fatal without an operation.
  - **D.** Fractures by Contre-coup.
    - a. Primarily fatal.
    - b. Secondary results.
- **C.** Injuries of the Soft Parts of the Cranium.
  - **A.** Of the Scalp.
    - a. Gunshot.
    - b. Incised and punctured.
    - c. Lacerated.
  - **B.** Of the Brain and Membranes.
    - a. Primarily fatal.
    - b. Secondary results.
- **D.** Diseases of the Cranium.
  - **A.** Of the Scalp.
  - **B.** Of the Bones.
  - **C.** Of the Brain and Membranes.
  - **D.** Of the Auditory Apparatus.

I. CRANIUM.

A. Gunshot Injuries of the Bones.

A. Contusions and Partial Fractures.

a. Primarily fatal.
b. Trephined.
c. Secondarily fatal with no operation.
d. Sequestra removed.
e. Other cases.

a. PRIMARILY FATAL.

1223. The anterior four-fifths of the cranium, showing a depressed partial fracture in the centre of the frontal bone,
a. 1. caused by a fragment of shell. The fracture in the external table measures three-fourths of an inch by one inch, with a depression one-fourth of an inch in the centre. The depressed portion of the inner table is slightly larger than that of the outer, and is composed of three pieces. All the fragments are *in situ*, and are attached by their outer edges.

Unknown (Rebel): killed at South Mountain, Md.
Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

2139. A section of the anterior portion of the cranium, showing a partial fracture and depression of the centre
a. 2. of the frontal bone, caused by a conoidal ball. The depressed portion measures one by one and one-fourth inches, the depth of the depression in the centre being half an inch. The external table presents a deep groove one and one-fourth inches long, made by the ball after it had produced the depression. The inner table shows a stellate fracture with depression, of slightly greater extent than the external. Died upon the table after amputation in the middle third of the left thigh, under chloroform, the knee having been shattered.

Private P. M., "B," 111th Pennsylvania, 22: Brown's Ferry, Tenn., 28th October; admitted hospital, Chattanooga, 29th: died, 30th October, 1863.
Contributed by Assistant Surgeon John C. Norton, U. S. Vols.

b. TREPHINED.

4348. A section of the occipital bone, perforated by a trephine for the relief of intra-cranial abscess resulting from
b. 1. gunshot contusion. The perforation has been made by a small instrument, and is situated just below the superior curved line of the occipital, one inch to the left of the median line. The disc removed is *in situ*, and the surrounding portion of the external table is slightly discolored and cribriform.

Sergeant B. F. C., "H," 8th New York Cavalry, 27: Petersburg, 1st April; admitted hospital, Washington, 5th; hæmorrhage from the occipital artery, 14th; trephined for abscess, with temporary relief, by Surgeon R. B. Bontecou, U. S. Vols., 19th; died, 21st April, 1865.
Contributed by the operator.

422. A disc of bone, one-half an inch in diameter, removed by the trephine from the cranial wall, and including
b. 2. a fracture with depression of both tables, probably caused by a buckshot. The opening in the external table is one-fourth of an inch in diameter, the fragment being evenly driven inward two lines. The fractured fragments of the inner table covered the surface of the disc, and are depressed two lines. The specimen is very interesting, but unfortunately no history can be obtained.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

2024. A section of the frontal bone trephined near its left eminence for suppuration, the result of contusion by a
b. 3. musket ball. The external table surrounding the opening is cribriform, and there is slight fissuring of the inner table.

Private W. A., "A," 49th Pennsylvania, 25: Rappahannock Station, 7th November; admitted hospital, Washington, 9th; trephined by Surgeon R. B. Bontecou, U. S. Vols., 18th; died, 25th November, 1863.
Contributed by the operator.

334. A segment of the right parietal, trephined near the coronal suture. The surrounding bone is porous and
b. 4. cribriform, and there has been contusion of the part operated upon. There are no pathological appearances on the inner table.

Private D. M., "F," 9th New York.
Contributed by Surgeon D. W. Bliss, U. S. Vols.

1199. The vault of the cranium, trephined for disease of the frontal bone following contusion by a musket ball. An
b. 5. abscess in the anterior lobe of the left cerebral hemisphere was evacuated through the perforation. The removed disc is *in situ*. The internal table is cribriform and carious for six square inches surrounding the opening, for which space the compact layer is almost ntirely removed. The outer table is porous and discolored to a slight degree.

Private S. A., "A," 50th Georgia (Rebel): Antietam, 17th September; trephined, Philadelphia, 11th October, 1862; died the same day.

Contributed by Acting Assistant Surgeon Morehouse.

625. A section of the frontal bone, trephined for a partial fracture with depression of the inner table. The
b. 6. opening is to the right of the upper part of the frontal suture, which is well marked. A fragment of the inner table, measuring three-fourths by one inch and depressed one-half a line, remains *in situ*.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

1871. The vault of the cranium, trephined above and within the right frontal eminence for fracture with depression
b. 7. of the inner table. The disc cut by the trephine is removed, and with it all trace of fracture of the outer table; two small fragments of the inner table remain attached, slightly depressed at their free edges. Externally there is slight caries, with exfoliation of the superficial lamella of bone, over a surface extending from the supra-orbital ridges to the centre of the sagittal suture, involving nearly the whole of the frontal and the upper borders of both parietal bones. Internally the entire surface of the frontal and the anterior half of the right parietal show traces of diseased action, with slight ossific deposit around the edge of the opening made by the trephine.

Contributed by Acting Assistant Surgeon Joseph Leidy.

1310. The vault of the cranium, partially trephined for fracture with depression of the frontal and left parietal
b. 8. bones at their junction and one inch from the median line, caused by a musket ball. The outer table and the diploe have been penetrated by the trephine, and the disc of bone, with a fragment of the outer table, has been removed. There is a stellate fracture and fissuring of the internal table, with depression of the sharp edges of the fragments to the depth of one line. The frontal suture is open.

Corporal G. H. S., "C," 18th Massachusetts: Chancellorsville, 3d May; admitted hospital, Washington, 9th; operation of trephining commenced but suspended, as no depression of the inner table was discovered; died, 17th May, 1863.

Contributed by Acting Assistant Surgeon Alfred Edelin.

4344. A segment of the cranium, with two partial discs and one fragment of
b. 9. bone removed by trephining, for the relief of fracture with depression of the inner table, the outer table being contused. The sections made by the trephine intersect each other. The surrounding bone is cribriform and slightly carious. When the trephine passed the outer table pus escaped from the diploe. An abscess had formed in the brain before the operation. *See figure* 1.

Private D. S., "E," 2d Virginia Cavalry, (Rebel,) 21: Appomattox Court-house, 9th April; admitted hospital, Washington, 19th; trephined by Surgeon R. B. Bontecou, U. S. Vols., 26th; died, 27th April, 1865.

Contributed by the operator.

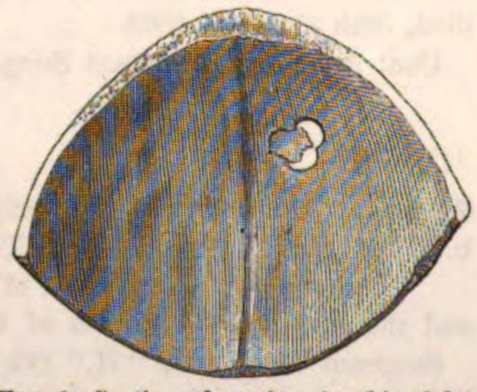

FIG. 1. Section of cranium trephined for fracture of inner table with contusion of outer table. *Spec.* 4344.

1359. The vault of the cranium, trephined just in front of the coronal suture and one inch to the left of the median
b. 10. line. Two discs intersecting each other have been removed, the opening measuring one and one-fourth inches by three-fourths of an inch. There is a slight stellate fissuring of the inner table.

Without a history, from Gettysburg.

2000. A section of cranium, with five discs and one fragment re-
b. 11. moved by the trephine from the anterior inferior angle of the right parietal and the corresponding portion of the frontal bones, for a contused wound. The opening left by the operation is trowel-shaped, crosses the coronal suture, and measures three inches from behind forward, and one and one-half inches from right to left. *See figure* 2.

FIG. 2. Section of cranium trephined five times for the evacuation of pus after a contusion. *Spec.* 2000.

Private J R., "E," 151st New York: Mine Run, Va., 27th November; trephined, on account of convulsions, by Surgeon D. P. Smith, U. S. Vols., Alexandria, 13th December, 1863. Death followed in twelve hours. The removed bone was infiltrated with pus, and the dura mater was uninjured.

Contributed by the operator.

See 4627, **XXVI.** A. 1, 22.

For other illustrations, see 3452, **I.** A. A. d. 6.

c. Secondarily Fatal without an Operation.

1393. c. 1. A segment of the cranium, slightly contused by a musket ball near the centre of the upper border of the frontal bone. Death occurred on the nineteenth day. The outer table is slightly discolored and cribriform, and the diploe is a little more spongy than is natural. When recent the diploe was of a dark yellowish gray color, as in cases of osteo-myelitis.

Musician E. A. C., "K," 44th New York: Cold Harbor, 3d June; admitted hospital, Washington; died, 22d June, 1864.
Contributed by Assistant Surgeon H. Allen, U. S. Army.

393. c. 2. The vault of the cranium, contused by a musket ball one inch externally to the right of the frontal eminence, with a fissure one inch in length running downward. There is stellate fissuring of the inner table with slight depression, the longest fissure being two inches in length. Two small wart-like exostoses exist near the centre of the frontal bone, one on either side of the groove for the longitudinal sinus.

Private H. L. L., "A," 35th Massachusetts: South Mountain, 14th September; admitted hospital, Baltimore, 20th September; died of meningitis, 9th October, 1862.
Contributed by Acting Assistant Surgeon J. H. Currey.
See class **I.** D. B.

613. c. 3. The vertex of the cranium, showing incipient caries and necrosis of the outer table of the right parietal bone above and behind the protuberance, twenty-two days after contusion by a musket ball. The scale of bone around which the line of demarcation has formed is elliptical in shape, measuring one inch by one and a half. The inner table presents no pathological appearance.

Private C. K., "K," 130th Pennsylvania: Fredericksburg, 13th December; admitted hospital, Baltimore, 20th December, 1862; died from tetanus, 4th January, 1863.
Contributed by Assistant Surgeon D. C. Peters, U. S. Army.
See 614, **I.** C. B. b. 3.

1660. c. 4. The body of the frontal bone, showing a contusion from a conoidal ball just above and external to the right frontal eminence, which resulted in death after twenty-seven days. The injured portion of the external table is porous and spongy, and a small scale of bone is in process of exfoliation. The internal table gives no trace of injury beyond the most trivial discoloration.

Private H. A. C., "K," 13th Massachusetts: Gettysburg, 3d July; died from meningitis, Fort Schuyler, N. Y. Harbor, 30th July, 1863.
Contributed by Acting Assistant Surgeon A. E. M. Purdy.

3406. c. 5. A portion of the right parietal bone, exhibiting a delicate right-angled fissure of the inner table, with no appreciable injury of the external surface. One branch of the fissure is one and a half inches in length and nearly parallel with the sagittal suture, below the anterior third of which it lies about one inch. The other branch is one inch long. Near the angle of the fissure the inner plate is very slightly depressed.

Contributed by Assistant Surgeon C. C. Byrne, U. S. Army.

1568. c. 6. A section of the cranium, showing a depressed fracture of the internal table of the left parietal near the middle of the sagittal suture, with no more appreciable injury to the external surface than a slight discoloration. The fractured portion measures one and one-fourth inches by three-fourths of an inch, is composed of three triangular pieces, and is depressed two lines. The missile is believed to have been a musket ball. *See figures* 3 *and* 4.

Private D. P., "C," 35th Wisconsin: Tupelo, Miss., 18th July; admitted hospital, Memphis, 23d; died from meningitis, 27th July, 1864.
Contributed by Acting Assistant Surgeon R. W. Coule.
See 4628, **XXVI.** A. 2, 94.

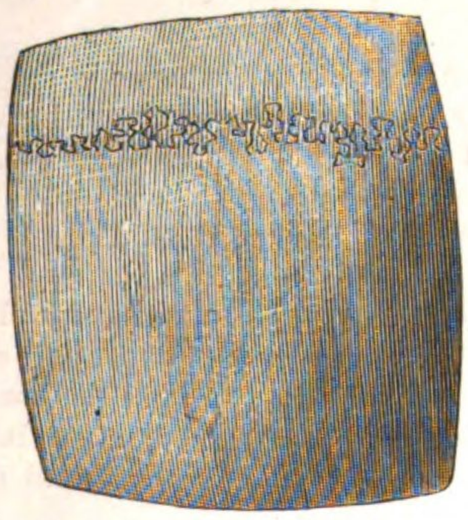

FIG. 3. External view of section of cranium contused with depressed fracture of inner table. *Spec.* 1568.

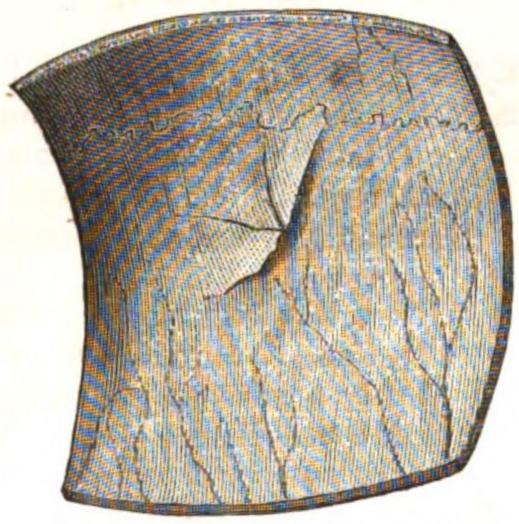

FIG. 4. Interior view of section of cranium contused externally. *Spec.* 1568.

2747. c. 7. The vault of the cranium, contused by a conoidal ball just over the left frontal protuberance. Externally the bone is discolored and spongy, and internally it is discolored over a square inch of surface. A simple fissure one inch in length appears on the inner table.

Private J. M. B., "D," 17th Virginia, (Rebel,) 17: Spottsylvania Court-house, 12th May; admitted hospital, Philadelphia, 20th May; died of meningitis, 8th June, 1864.
Contributed by Acting Assistant Surgeon C. P. Tutt.

2744. The vault of the cranium, showing the effect of a contusion of the centre of the frontal bone, between the
c. 8. prominences, by a conoidal ball. In the external table a portion of bone measuring one-fourth by one inch, a small fragment of which is depressed one-half a line, is surrounded by a slight groove. The inner table is traversed by a fissure one inch in length, one edge of which is slightly depressed.

Private W. A., "F," 11th Pennsylvania: Wilderness, 7th May; admitted hospital, Philadelphia, 18th; died from abscess of the brain, 25th May, 1864.

Contributed by Acting Assistant Surgeon J. K. Baldwin.

1951. The vault of the cranium, showing necrosis and fracture of the frontal bone external to the left frontal
c. 9. protuberance. The inner table presents a T shaped fissure without depression, and is spongy. A thin plate of bone one inch in diameter is necrosed on the external table, and the osseous tissue adjacent is porous and cribriform.

Sergeant D. R., "B," 19th Massachusetts: Brandy Station, Va., 11th October; admitted hospital, Washington, 19th October; hæmorrhage from temporal artery, 6th November; gangrene followed; died, 29th November, 1863.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

See class **XXIII.** A. B.

3639. The vault of the cranium, contused by a musket ball one inch behind the coronal suture, with a fissure
c. 10. of the inner table at the sagittal suture. Externally a line of demarcation is forming, surrounding an oval plate of bone one and one-fourth inches long and one-fourth of an inch wide, the long diameter crossing the suture nearly at right angles. A fissure of the inner table one and a half inches in length crosses the suture, and on the left side one edge is slightly depressed. There is superficial necrosis, exfoliation and absorption of the surrounding bone, and the diseased action extends backward, along the groove for the longitudinal sinus, to the occipital. A fissure which occurs in the external table for one inch at the left parietal protuberance, does not appear to have existed before death.

Sergeant W. H. B., "K," 47th Pennsylvania, 24: Cedar Creek, Va, 19th October; admitted hospital, Philadelphia, 26th October; died, 5th November, 1864.

Contributed by Acting Assistant Surgeon Henry Mullen.

2313. A segment of the frontal bone, showing the outer
c. 11. table contused and the inner table fractured by the impingement of a conoidal ball to the left of the median line, near the coronal suture. The external table is not fractured, but is porous and softened. A fragment of the inner table, one and one-fourth inches long and three-fourths of an inch broad, is completely detached. An excellent illustration of a rare form of injury. *See figures* 5 *and* 6.

Private A. L., "C," 78th New York: Wilderness, 6th May; admitted hospital, comatose, Washington, 12th; died, 24th May, 1864.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

See 4627, **XXVI.** A. 1, 10.

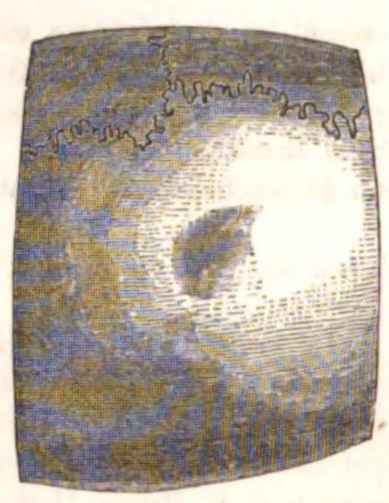

FIG. 5. Exterior view of frontal bone contused on outer table and fractured within. *Spec.* 2313.

FIG. 6. Fracture of internal table of frontal bone, with contusion of external table. *Spec.* 2313.

662. The vault of the cranium, showing a contusion of the right parietal bone at the middle of its superior border.
c. 12. The outer table is spongy, and a thin plate, one inch in length, is necrosed and partially separated. The internal table is fractured and slightly depressed, and shows traces of an attempt at repair.

Death resulted from an abscess of the brain.

Contributed by Assistant Surgeon J. W. Brewer, U. S. Army.

2523. The body of the frontal bone, with a fragment of lead impacted near the centre and to the left of the median
c. 13. line. An ovoid plate of the external table, measuring one by two inches, is slightly discolored and surrounded by a groove of demarcation, externally to which the bone is cribriform. A plate of the inner table, measuring one square inch, is detached by three of its sides, and driven inward to the depth of two lines at its free edges. Two fissures, each one and one-fourth inches in length, run backward and outward, and there is a slight deposit of new osseous material on the inner surface.

Corporal W. E. S., "F," 84th Pennsylvania, 25: Wilderness, 5th May; admitted hospital from Washington, Chester. Penn., 27th; died from meningitis, 31st May, 1864.

Contributed by Surgeon T. H. Bache, U. S. Vols.

See class **XXVII.** B. B. d.

1922. The vault of the cranium, fractured by a fragment of shell in front of and a little above the left parietal
c. 14. protuberance. An ovoid necrosed plate of the external table, measuring one-half by one inch, remains *in situ* surrounded by a groove of demarcation, the surrounding bone being porous and cribriform. The internal table is fractured without depression, and is carious for two square inches.

Private W. McP., "A," 101st Ohio: Chickamauga, 20th September; admitted hospital, Nashville, 24th September; died from meningitis, 14th October, 1863.

Contributed by Assistant Surgeon C. J. Kipp, U. S. Vols.

See 1923, **I.** C. B. b. 4.

2964. c. **15.** A wet preparation of a segment of cranium, showing necrosis of both tables following contusion by a musket ball near the centre of the frontal bone. The dead bone remains *in situ* and measures one and a half inches in length and breadth. The inner table is partially absorbed, and the corresponding portion of the dura mater is thickened by deposit of lymph. The dura mater is not penetrated, and there is neither fracture, depression, nor fissure of the bone.

Private J. W. H., "D," 61st Pennsylvania, 29: Spottsylvania, Va., 12th May; admitted hospital, Washington, 12th July; died, 7th August, 1864.

Contributed by Assistant Surgeon C. A. McCall, U. S. Army.

2920. c. **16.** The vault of the cranium, severely contused near the middle of the posterior edge of the right parietal bone. Three square inches of the external table at the seat of the injury are spongy and carious, with a well-marked line of separation. The missile, a pistol ball, was found against the skull, flattened, two inches forward of the seat of fracture, and is attached to the specimen. There is a small spot of necrosis on the inner table, which is perforated by several foramina, but otherwise little changed.

Private T. K., "M," 1st Massachusetts Heavy Artillery, 30: wounded, 16th June; readmitted hospital from furlough, Washington, 29th July; died from abscess of brain, 31st July, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

See class **XXVII.** B. B. d.

646. c. **17.** A segment of cranium, showing a contusion and fracture of the parietal bones at the sagittal suture, one inch behind the coronal. The outer table is necrosed, and a space of one inch by one-fourth has exfoliated, the surrounding bone being cribriform and spongy. The inner table is fissured and porous, with a depression of one-half a line.

Contributed by Surgeon I. Moses, U. S. Vols.

2758. c. **18.** The vault of the cranium, showing a depressed fracture between the frontal eminences by a musket ball. The fragment is ovoid, measuring one by one-half inch, with a central depression of two lines. In the inner table a fissure opens the left frontal sinus.

Private H. S., "E," 118th Pennsylvania, 38: wounded, 9th May; admitted hospital, Philadelphia, 28th May; died, 4th June, 1864.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

628. c. **19.** A section of the left parietal, with both tables slightly depressed as if from a canister shot. The depressed portion of the external table is circular and one-half an inch in diameter, the surrounding bone being cribriform. The inner table is irregularly fissured, and depressed one-half a line.

Private G. W. B., "A," 10th Pennsylvania Reserves: Fredericksburg, 13th December; admitted hospital, Washington, 14th December, 1862; died from meningitis, 4th January, 1863.

Contributed by Surgeon John A. Lidell, U. S. Vols.

392. c. **20.** The vault of the cranium, with depressed fracture of the left parietal bone behind and above the tuberosity. The fractured portion of the external table measures one by one-half inch, and is necrosed. A fragment of the inner table, one-half inch in diameter, is depressed one line. Three small fissures radiate from it.

Private J. S., "D," 48th Pennsylvania: Antietam, 17th September; admitted hospital, Baltimore, 23d September; exhibited no grave symptoms until 6th October; died from meningitis, 8th October, 1862.

Contributed by Acting Assistant Surgeon J. H. Currey.

1257. c. **21.** A section of the cranium, with both tables of the right parietal bone fractured, with depression below and behind the tuberosity, by a musket ball. The fracture in the external table is one half inch in diameter, and depressed two lines. The inner table is fractured to the diameter of one inch, and is depressed in the centre one line. The surrounding bone is porous and cribriform. *See figures 7 and* 8.

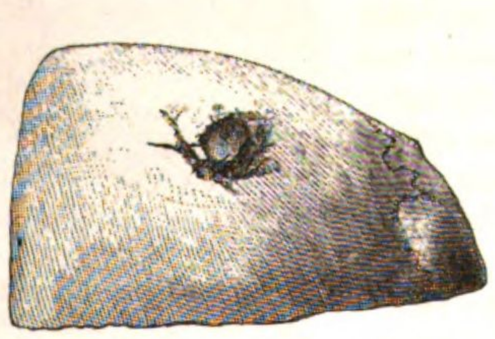

FIG. 7. Depressed fracture external table of the right parietal. *Spec.* 1257.

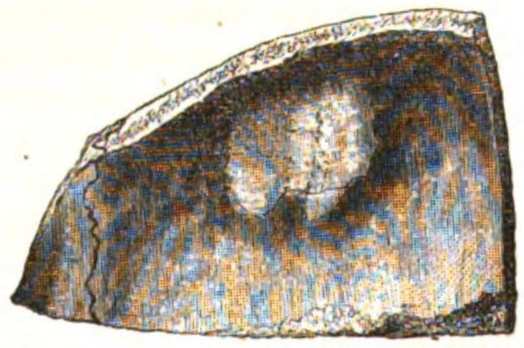

FIG. 8. Depressed fracture inner table right parietal. *Spec.* 1257.

Private G. V., "C," 86th New York: probably Chancellorsville, 3d May; admitted hospital, Washington, 7th; died from meningitis, after exposure to sun, 22d May, 1863

Contributed by Surgeon O. A. Judson, U. S. Vols.

See 2223, **I.** C. B. b. 2; 4627, **XXVI.** A. 1, 34.

224. A section of the left parietal bone, showing
c. 22. a fracture with depression of both tables near the tuberosity, caused by a musket ball. The external fracture is circular and one-half inch in diameter, a small fragment being driven in upon the diploe. The internal table is more extensively fractured, and a plate of bone three-fourths of an inch in diameter is driven inward to the depth of two lines. *See figures* 9 *and* 10.

Private L. L., "F," 74th New York: Williamsburg, 5th May; admitted hospital, Philadelphia, 13th; died, 23d May, 1862.

Contributed by Acting Assistant Surgeon John Neill.

See 4627, **XXVI.** A. 1, 26.

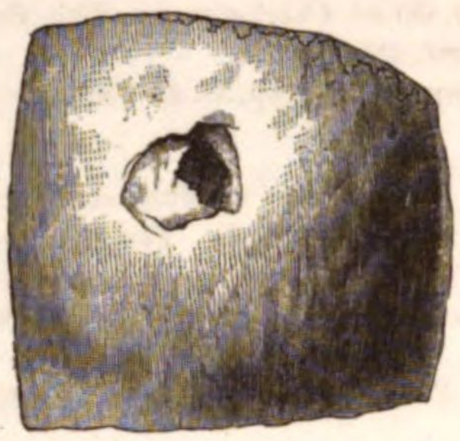

FIG. 9. Depressed fracture outer table left parietal. *Spec.* 224.

FIG. 10. Depressed fracture inner table left parietal. *Spec.* 224.

3415. The vault of the cranium, fractured, with depression of one-fourth of an inch in the lower part of the right
c. 23. parietal bone, by a musket ball. The opening in the outer table is three-fourths of an inch in diameter. The fragments of the inner table measure one by one and a half inches, and consist of two pieces touching at their inner edges.

Sergeant O. B. L., "A," 22d Iowa, 25: Cedar Creek, Va., 19th October; admitted hospital, Baltimore, 27th; died from abscess of the brain, 31st October, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

546. A section of the frontal bone, with a fragment of ball embedded and projecting upon the inner surface. The
c. 24. fracture with depression passes through the right frontal sinus. The external opening measures three-fourths of an inch from right to left, and one-third of an inch from above downward, with edges rounded by the commencing repair. One and a half square inches of the inner table are depressed half an inch. The fragment of ball, having passed obliquely from right to left, projects from the left edge of this fragment and has also opened the left frontal sinus.

Unknown: wounded, Newbern, N. C.; died, 25th October, 1862.

Contributor and further history unknown.

See class **XXVII.** B. B. d.

4255. A section of the cranium, showing a complete fissure two and a half inches in length in the left parietal, and
c. 25. a depressed fracture of the frontal and parietal bones at their junction, caused by a musket ball. A portion of the temporal bone, nearly three-fourths of an inch in diameter, is depressed one line at the point of impact in front of the anterior angle of the parietal, the fissure extending from it backward and downward to the border of the temporal. The inner table is depressed and separated over a somewhat greater distance, and two slight fissures radiate from it.

Private E. L. C., "I," 34th Massachusetts, 26: New Market, Va., 15th May; admitted hospital, insensible, Cumberland, Md., 18th; died, 21st May, 1864.

Contributed by Surgeon J. B. Lewis, U. S. Vols.

24. A segment of the frontal bone,
c. 26. contused by a musket ball between the eminences a distance of two inches by one, with a fissure extending downward and outward through both tables into the right frontal sinus. The external table is very slightly depressed, and presents two small fractures. Two fragments of the inner table are driven inward to the depth of half an inch, touching each other by their inner edges, like the leaves of a folding door just ajar. A small cerebral abscess was found under the fracture. *See figures* 11 *and* 12.

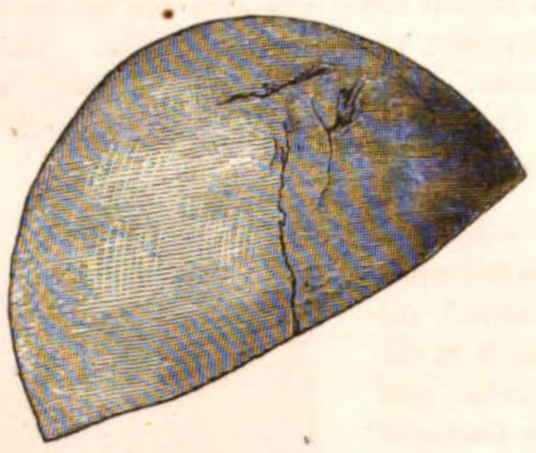

FIG. 11. Fissure and slightly depressed fractures in external table frontal bone. *Spec.* 24.

FIG. 12. Depressed fracture inner table frontal bone with slight external injury. *Spec.* 24.

Private M. L. H., "E," 21st Virginia, (Rebel,) 20: Petersburg, 25th March; admitted hospital, Washington, 28th March; no bad symptoms until 1st April; died, 5th April, 1865.

Contributed by Acting Assistant Surgeon J. P. Arthur.

2619. A segment of cranium deeply indented above and external to the right frontal eminence, the result of consoli-
c. 27. dation and repair of fracture with depression of both tables. The rim of the depression is three-fourths of an

inch in diameter, and the depth in the centre one-fourth of an inch. A portion of the outer table has been removed. The inner table has been fractured in three triangular plates, all of which are firmly consolidated and all the fissures filled up by a deposit of new bone, the depression of that table being two lines. The substance of the brain immediately under the injured bone was found softened and disorganized.

Private T. P., "D," 30th Maine, 41: admitted hospital, with typhoid fever, Baltimore, 5th April; partially recovered from the fever, and died 2d July, 1865.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

See class **I.** C. B.

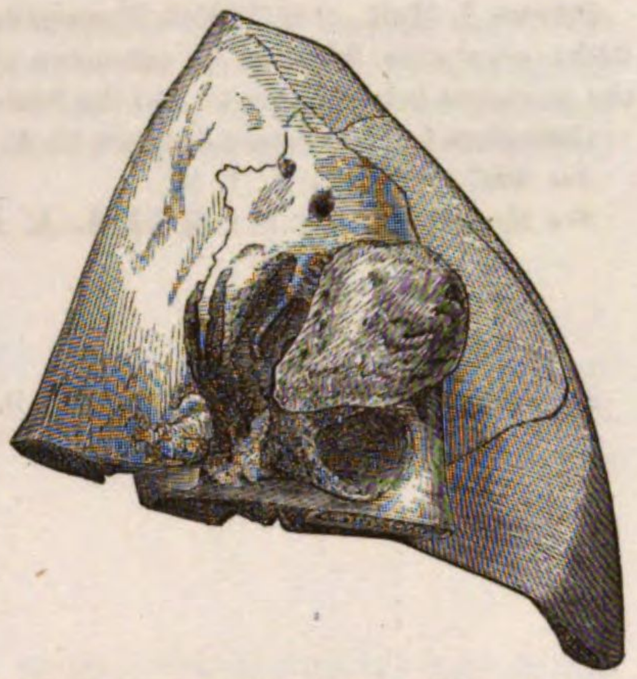

FIG. 13. Fracture of mastoid portion of right temporal. *Spec.* 183.

183. c. 28. A segment of cranium, fractured at the mastoid portion of the right temporal bone. The mastoid process has been broken off, opening the mastoid cells. The bone is neither fissured nor comminuted. *See figure* 13.

Received from Columbian General Hospital, Washington.

For other illustrations see 967, **I.** C. B. b. 1; 2989, **II.** A. A. b. 3; 1016, **II.** A. A. b. 4; 745, **V.** A. B. b. 24.

d. SEQUESTRA REMOVED.

1666. d. 1. A necrosed fragment of the right parietal bone, removed five weeks after partial fracture. It measures one-half by one-fourth of an inch, and is composed of diploe and outer table.

Corporal E. S., "G," 15th New Jersey, 34: Second Fredericksburg, 3d May; admitted hospital, Washington, 8th May; specimen removed, 7th June; furloughed, cured, 17th August, 1863.

Contributed by Surgeon John A. Lidell, U. S. Vols.

4178. d. 2. Two small fragments of necrosed bone removed from the left parietal. The largest fragment is one-half an inch square.

Private J. Y., "A," 11th New Jersey, 21: Petersburg, 10th November; admitted hospital, Washington, 26th November; specimen removed, 21st December, 1864; discharged the service, in excellent health, 13th June, 1865.

Contributed by Surgeon B. B. Wilson, U. S. Vols.

4194. d. 3. A necrosed fragment from the right parietal bone, including a fracture with depression of the inner table. The specimen measures externally one by one and a half inches, the fragment of the inner table, which is depressed one line, measuring one-fourth by three-fourths of an inch. The outer table is intact. The specimen is exceedingly remarkable.

Private J. D., "I," 97th Pennsylvania, 16: Petersburg, 15th June; admitted hospital, Philadelphia, 31st August; specimen removed by Acting Assistant Surgeon H. M. Bellows, 22d November, 1864; transferred to Veteran Reserve Corps, 2d March, 1865.

Contributed by the operator.

3863. d. 4. A fragment of bone from the left parietal, necrosed in consequence of a shell wound, and removed by an operation with successful result. The fragment measures one by three inches, and is composed chiefly of the external table, only one-half of a square inch of the inner table being present.

Private C. M., "D," 69th Pennsylvania, 20: Antietam, 17th September, 1862; admitted hospital, Frederick, 27th January specimen removed, 20th March; reported cured, 25th May, 1863.

Contributed by Acting Assistant Surgeon G. M. Pullen.

2623. d. 5. A sequestrum from one of the cranial bones involving both tables, as though following a contusion. It is irregularly quadrilateral, measuring one and one-fourth by two inches on the external surface, the plate from the inner table being much smaller.

History and contributor unknown.

3452. d. 6. The body of the right parietal bone necrosed, and removed by operation with successful result. There has been fracture by a musket ball, with depression of the inner table, and a disc of bone, including nearly all the depressed portion, has been removed by a trephine. The entire portion of the necrosed bone is irregularly quadrilateral, and measures three by four inches. *See figure* 14.

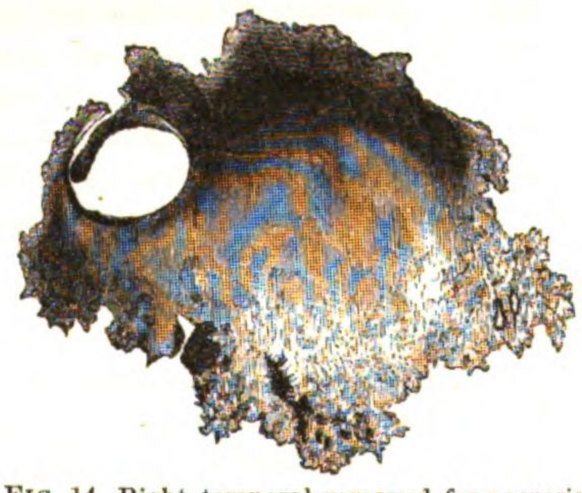

FIG. 14. Right temporal removed for necrosis after erysipelas following trephining for a depressed fracture. *Spec.* 3452.

Private J. McK., "H," 105th Pennsylvania, 20: Petersburg, 14th June; admitted hospital and trephined, Washington, 24th; erysipelas, followed by extensive sloughing and disease of the bone, occurred 28th June; necrosed bone removed, the meninges being destroyed and the brain exposed, 3d September; wound healed and reported cured, 2d December, 1864.

Contributed by Assistant Surgeon C. A. McCall, U. S. Army.

See 4627, **XXVI.** A. 1, 27.

See classes **I.** A. a. b.; **XXIII.** A. a.

e. Other Cases.

For illustrations see 4473, **XXVII.** B. b. d, 6; 2771, **XXVII.** B. b. d. 188.

B. Penetrating Fractures.

a. Primarily fatal.
b. Operated upon by the removal of fragments.
c. Operated upon by trephining.
d. Secondarily fatal without an operation.
e. Other cases.

a. Primarily Fatal.

1164. a. 1. A section of the cranium, showing a depressed fracture of the right parietal and occipital bones. The fractured portion is ovoid, with a length of two and a half inches, a width of one and a half inches, and a depression of half an inch, involving chiefly the posterior inferior angle of the parietal. The fractured portion consists of two plates, touching at their inner edges, like the leaves of a partly opened folding door.

Private G. W. S, "A," 3d Rhode Island Artillery: injured by the explosion of the magazine of the gunboat "George Washington," Coosaw River, S. C, 9th April; died, Beaufort, S. C., 12th April, 1863.

Contributed by Surgeon F. L. Dibble, 6th Connecticut.

529. a. 2. The vault of the cranium, showing a fracture with depression of the lower border of the left parietal bone. The depressed portion measures two inches in diameter, and is driven inward to a depth of three-fourths of an inch in the centre. The fragments remain *in situ* attached by their outer edges, the line of fracture of the inner table crossing the groove for the posterior branch of the arteria meningea media.

Unknown: Fredericksburg, 13th December; admitted hospital, Washington, 18th; died, 19th December, 1862.

Contributed by Surgeon J. C. Dorr, U. S. Vols.

2871. a. 3. A cranium, extensively fractured at the intersection of the coronal and sagittal sutures by a shell. The depressed fragments measure two and a half inches from before backward, and three and a half inches from right to left. The squamous portion of the left temporal is fissured, and all the sutures of this bone are opened. The left orbital plate and lower wing of the sphenoid are fractured, as if by contre-coup. *See figure* 15.

Unknown (Rebel): wounded before Washington, admitted hospital and died, 17th July, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

See 4627, **XXVI.** A. 1, 9.

See **A'**.

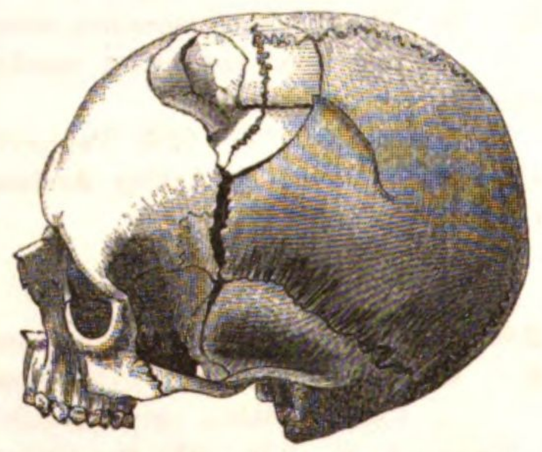

Fig. 15. Extensive shell fracture of cranium. *Spec.* 2871.

2870. a. 4. A section of the cranium, penetrated at the middle of the right squamous suture by a musket ball which entered the brain. The opening externally measures one and a half inches downward and backward, and one inch in width. A fissure extends downward through the squamous portion of the temporal, and a second fissure, five inches long, curves forward and downward into the great wing of the sphenoid.

Unknown (Rebel): wounded, admitted hospital and died, Washington, 17th July, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

1170. a. 5. A cranium extensively fractured and fissured by a fragment of shell. There is an opening in the centre of the frontal bone measuring three inches transversely, by three-fourths of an inch from above downward. From this one line of fracture passes backward to the centre of the coronal suture, a second to the left parietal protuberance, and a third downward to the inner angle of the right orbit, being continued by a fracture through the right superior maxilla. Other fractures traverse the frontal bone, which is divided into five large fragments.

Unknown (Rebel): killed at Antietam.

Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

95. A skull, showing a fracture of the frontal bone and walls of the right orbit, caused by a musket ball. The
a. 6. inner half of the right supra-orbital arch, the greater part of the orbital plate of the frontal, and the right lateral plate of the ethmoid are removed. All the bones composing the walls of the orbit are more or less fractured and comminuted, and a fissure extends backward from the external angular process of the frontal to the right parietal protuberance. Both walls of the right frontal sinus are partially carried away.

Unknown (Rebel).

Contributed by Surgeon J. B. Brinton, U. S. Vols.

1169. A cranium fractured by a musket ball which entered just below the right orbit, carried away the orbital plate
a. 7. of the superior maxilla, the right pterygoid process of the sphenoid, and the right condyle of the occipital bone. A fissure two inches long runs backward from the right posterior condyloid foramen to the inferior curved line of the occipital.

Unknown (Rebel): killed at Antietam.

Contributed by Surgeon B. A Vanderkeift, U. S. Vols.

831. A cranium extensively fractured and fissured, probably by shell. An opening extends from the right frontal
a. 8. eminence to the mastoid portion of the right temporal, being five inches long and one and a half inches wide. From the anterior extremity of this a fracture traverses the frontal bone to the middle of the left branch of the coronal suture, while from the posterior portion a second fracture traverses the right parietal to the centre of the occipital bone. A part of the right orbital plate of the frontal is carried away. Lines of fracture traverse the right supra-orbital arch, the nasal process of the right superior maxillary, and the base of the mastoid process of the right temporal.

Contributed by Dr. Holmes.

952. Skull of a negro soldier, fractured by a small pistol ball which entered at the inner and lower angle of the left
a. 9. orbit, traversed the lachrymal and body of the ethmoid, and entered the cranial cavity through the centre of the anterior wall of the sella turcica, making a square aperture one-half inch in diameter. The inferior wall of the left orbit is comminuted; the ball, somewhat flattened, is attached.

Contributed by Assistant Surgeon W. Moss, U. S. Vols.

See 957, **I.** C. B. b. 8; 953, **XXII.** A. B. a. 1.

See class **XXVII.** B. B. d.

For other illustrations see 4150, **XXVII.** B. B. d 185.

b. Operated upon by the Removal of Fragments.

1673. A portion of the frontal bone with a depressed fracture,
b. 1. supposed to have been produced by a pistol ball. The external table is fractured to the diameter of one-fourth of an inch. A fragment of the inner table, one-half by one inch, is completely separated and driven inward. Nearly all the fractured portion of the outer table has been removed; a small fragment remaining is driven into the diploe to the depth of two lines. The specimen is interesting from the much greater size of the internal than the external injury. *See figures* 16 *and* 17.

Private J. K., "G," 6th New York Cavalry: Gettysburg, 3d July; admitted hospital, (from a Baltimore hospital,) Washington, 24th; died, from abscess of the brain, 27th July, 1863.

Contributed by Surgeon O. A. Judson, U. S. Vols.

FIG. 16. External view of depressed or punctured fracture of frontal bone. *Spec.* 1673.

FIG. 17. Inner table of frontal bone more fractured than external table. *Spec.* 1673.

430. A necrosed fragment of bone, three-fourths of an inch long and one-eighth of an inch wide, removed by
b. 2. operation from the occipital bone fractured by a musket ball.

Corporal J. A. B., "C," 2d New Hampshire: Gettysburg, 2d July; admitted hospital, Philadelphia, 10th July, 1863; reported cured, 1st March, 1864.

Contributed by Acting Assistant Surgeon L. K. Baldwin.

2001. The vault of the cranium, showing fracture of the left parietal bone near the sagittal suture, from which the
b. 3. loose fragments have been removed. The opening in the outer table measures three-fourths by one-fourth of an inch, with slight fissuring surrounding a fragment which measures one-fourth square inch. The portion of inner table removed measures three-fourths by one and one-fourth inches.

Contributed from Chattanooga, by Assistant Surgeon C. C. Byrne, U. S. Army.

3131. Five small fragments of the inner table of the right parietal bone removed by operation. A conoidal ball,
b. 4. split from the point to the centre and impacted on the edge of the fracture, was removed on the field and is attached.

Private W. B., "G," 8th Pennsylvania Cavalry, 18: Deep Bottom, Va., 14th August; admitted hospital, Washington, 17th; fragments removed, 20th; died, 25th August, 1864.

Contributed by Surgeon N. R. Mosely, U. S. Vols.

See class **XXVII.** B. B. d.

3626. Four small fragments from the temporal bone, removed by operation. They are chiefly from the inner table,
b. 5. and involve one-third of a square inch of surface.

Private D. B., "E," 100th Pennsylvania, 33: Petersburg, 17th June; admitted hospital, Philadelphia, 19th July; specimen removed by Acting Assistant Surgeon D. H. Agnew, 30th July; discharged, 22d September, 1864.

Contributed by Surgeon J. Hopkinson, U. S. Vols.

3130. Four fragments of the squamous portion of the left temporal, with a conoidal ball half severed by the edge
b. 6. of the fractured bone, removed by operation. The fragments include one square inch of surface.

Private B. N., "G," 19th Massachusetts, 30: Deep Bottom, Va., 14th August; admitted hospital, and ball and bony spiculæ removed from substance of brain, 17th; died, 19th August, 1864.

Contributed by Surgeon N. R. Mosely, U. S. Vols.

See class **XXVII.** B. B. d.

410. Nine small fragments, removed by operation from the frontal bone after fracture by a musket ball. The
b. 7. fragments consist chiefly of diploe and vitreous table, and include one-fourth square inch of surface.

Private C. H. K., 12th Massachusetts: Antietam, 17th September; admitted hospital, Baltimore, 20th; specimen removed by Surgeon C. W. Jones, U. S. Vols., 23d September; hernia cerebri appeared, 2d October; died, 3d October, 1862.

Contributed by the operator.

411. Four fragments, removed by operation from the squamous portion of the left temporal bone for fracture caused
b. 8. by a musket ball. The largest fragment measures one-fourth by one inch.

Private C. B., 70th New York: Williamsburg, 5th May, 1862. Successfully treated in a Baltimore hospital.

Contributed by Surgeon L. Quick, U. S. Vols.

4073. Seven small fragments, removed from the left parietal bone, fractured and depressed by a musket ball.
b. 9. Corporal M. F., "E," 28th Massachusetts, 25: probably Fort Steadman, 25th March; admitted hospital, Washington, 30th; specimen removed by Surgeon N. R. Mosely, U. S. Vols., 31st March; transferred from Philadelphia to Massachusetts, 24th July, 1865.

Contributed by the operator.

3553. Eight fragments of bone and a battered round leaden ball, removed by operation from the right parietal. The
b. 10. fragments are chiefly from the inner table, and amount to one-half square inch of surface.

Private C. T., "H," 63d New York, 17: Antietam, 17th September; admitted hospital, Frederick, 28th; specimen removed and hernia cerebri excised, 29th September; died, 17th December, 1862.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

See 3859, **I.** A. B. b. 60.

See class **XXVII.** B. B. d.

1235. A portion of the frontal bone, perforated and fractured at the outer and upper angle of the right orbit by a
b. 11. conoidal ball. The opening is nearly an inch in diameter and involves the superciliary ridge, the orbital plate, the external angular process, and the frontal sinus. One fragment of the orbital plate remains *in situ* slightly depressed. The others appear to have been removed in the field. The inner table opposite each frontal eminence is cribriform.

Private J. W. A., "F," 70th Indiana: Resaca, Ga., 14th May; admitted hospital and died, Chattanooga, 25th June, 1864.

Contributed by Acting Assistant Surgeon H. S. Kilburn.

2121. A segment of the right parietal bone perforated near the middle of the lower
b. 12. border by a conoidal ball, which was split longitudinally by the edge of the fractured bone into two nearly equal portions, which are attached, one having passed externally and the other inward. The cut surface of the outer section is as smooth and regular as if divided with a knife; the inner segment is somewhat battered and distorted, from having impinged against the inner table of the skull. The surface of bone fractured is three-fourths of an inch in diameter, and most of the fragments have been removed. *See figure* 18.

Sergeant J. N. H., "K," 19th Maine, 36: Morton's Ford, Va., 6th February; fragments of ball removed, 12th; died, in Second Corps Field Hospital, 19th February, 1864.

Contributed by Surgeon J. Dwinelle, 106th Pennsylvania.

See class **XXVII.** B. B. d.

FIG. 18. Conoidal ball split on right parietal. *Spec.* 2121.

1497. A segment of the frontal bone, fractured above the left frontal protuberance by a small iron canister shot, which
b. 13. is attached. The missile was found in the frontal lobe, in a cavity several times its own size. The wound of the external table is one inch by one and three-fourths, from which two-thirds of the substance have been removed, the remaining fragments being slightly depressed. The fracture and loss of substance of the inner table are somewhat greater, and the borders are necrosed.

Private J. B. I.

Contributed by Surgeon Edwin Bentley, U. S. Vols.

See class **XXVII.** B. A. c.

4075. Six fragments of bone from the cranium, with a part of a conoidal ball. The fragments consist of outer and
b. 14. inner table and diploe, and together make up nearly one square inch of bone.

Sergeant L. N. E., "I," 1st Michigan, 23: admitted hospital, Washington, 4th April; specimen removed by Surgeon N. R. Moseley, U. S. Vols.; died, 23d April, 1865.

Contributed by the operator.

See class **XXVII.** B. A. c.

1723. The vault of the cranium, fractured by a musket ball just below the anterior superior angle of the left parietal
b. 15. bone. Fragments have been removed from an opening three-fourths of an inch in diameter, and from the inner table from a surface one inch in diameter. Two fragments of the outer and inner tables remain attached, being depressed two lines at the free edges. The edges of the opening are rounded off, the surrounding bone is soft and slightly porous, and upon the internal table there are traces of periosteal disturbance with slight deposit of ossific matter.

Corporal I. D. M., "D," 108th New York: Fredericksburg, 13th December; admitted hospital, Alexandria, 19th December, 1862; died, 30th January, 1863.

Contributed by Acting Assistant Surgeon A. W. Fryer.

3091. Three fragments of necrosed bone, the largest covered with osteophytes, and measuring one-half by one and a
b. 16. half inches.

Contributor and history unknown.

See class **I.** D. B.

3543. A section of cranium showing fracture with depression near the
b. 17. centre of the sagittal suture, caused by a conoidal ball, which is impacted and split from the point nearly to the base by the edge of the fractured bone. The ball and eight fragments of bone which are attached were removed by operation. The opening in the bone is three-fourths of an inch in diameter. The surrounding inner table is carious and necrosed over two square inches of its surface, and the outer table bears marks of diseased action over a surface eight inches in diameter. *See figure* 19.

Private C. C. W., "I," 6th Wisconsin, 21: Spottsylvania, 12th May; admitted hospital, Washington, 18th; ball and fragments of bone removed, 31st May: died, 4th June, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See 4627, **XXVI.** A. 1, 23.

See class **XXVII.** B. B. d.

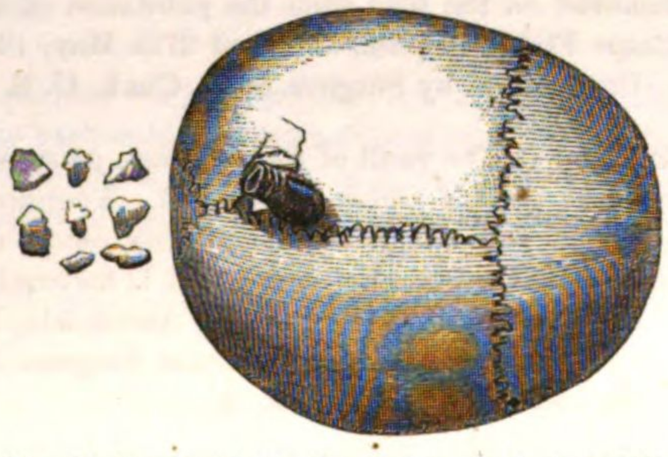

FIG. 19. Conoidal ball split on left parietal. *Spec.* 3543

1727. The vault of the cranium, with seven fragments of bone and two of a leaden pistol ball. The frontal bone is
b. 18. fractured with depression one inch above and internal to its left eminence. The opening made by the removal of fragments is ovoid, and measures one-half by one inch externally, the injury to the inner table being slightly more extensive. One fragment of the bullet was found just beneath the scalp, and one in the substance of the brain.

First Sergeant C. A. C., "A," 3d Virginia Cavalry (Rebel): wounded, 11th October; admitted hospital, Washington, 13th; died, 15th October, 1863.

Contributed by Surgeon N. R. Mosely, U. S. Vols.

See class **XXVII.** B. B. d.

2680. A segment of cranium fractured at the coronal suture, near the inferior angle of the right parietal bone, by a
b. 19. conoidal ball. Five fragments of bone, chiefly from the inner table, are attached. The opening externally measures one-half by one inch, the edge being beveled internally. The fragments removed include all the fractured portion of the bone. The ball, which is battered and misshapen, was found after death in an abscess in the posterior lobe of the right hemisphere. A purulent deposit between the dura mater and the arachnoid extended over the whole hemisphere.

Private H. F. M., "G," 39th Massachusetts: Spottsylvania, 12th May; admitted hospital, Washington, 18th; fragments removed, 19th; died, 25th May, 1864.

Contributed by Assistant Surgeon George A. Mursick, U. S. Vols.

2998. Nine fragments, embracing one and one-fourth square inches of the right parietal bone, removed by operation.
b. 20. Private ———, 173d New York, 40: Port Hudson, La., 14th June; admitted hospital, New Orleans, 17th June, 1863. The specimen was removed the same day. Transferred to the Veteran Reserve Corps entirely well.
Contributed by Assistant Surgeon P. S. Connor, U. S. Army.

991. The vault of the cranium, with perforation of the frontal bone just in front of the anterior inferior angle of the
b. 21. right parietal caused by a buckshot. The opening is nearly circular, with rounded edges, and measures three-fourths of an inch in diameter. Two minute depressed fragments of the inner table adhere to the edge; all the others have been removed.
Private W. M. W., "F," 19th Georgia, (Rebel,) 18: probably Fredericksburg, 13th December; admitted hospital, Washington, 23d December, 1862; "phthisis * * * effectually marked the brain symptoms until a few hours before death."
Contributed by Acting Assistant Surgeon W. A. Harvey.

3508. A section of the frontal bone, perforated just externally to its left eminence, with extensive caries and necrosis
b. 22. of the surrounding portion of the inner table. The opening measures three-fourths of an inch from right to left, and one inch from above downward. All the fragments have been removed. The inner table is necrosed and partially removed for two square inches of surface, extending down upon the orbital plate, which is perforated.
Contributed by Surgeon Robert Wm. Pounds.

2506. Three fragments of bone from the cranium, involving a little over one square inch of the inner table, removed
b. 23. by operation, for the relief of fracture with depression caused by a musket ball.
Corporal J. B., "D," 103d Pennsylvania, 49: Cold Harbor, 3d June; admitted hospital, Washington, 7th; died, 12th June, 1864.
Contributed by Surgeon N. R. Mosely, U. S. Vols.

1196. A segment of frontal bone, perforated a little to the right of the median line by a musket ball. The opening is
b. 24. elliptical and measures one-half by one inch, and is surrounded by a ring of bone in process of separation, the line of demarcation having formed.
Private N. O., "E," 44th New York: Chancellorsville, 2d May; fragments of bone and a brass figure 4 from his cap removed on the field from the substance of the brain, by Assistant Surgeon J. S. Billings, U. S. Army; treated in Fifth Corps Field Hospital, and died 27th May, 1863. The missile was not found.
Contributed by Surgeon A. M. Clark, U. S. Vols.

2271. The vault of the cranium, penetrated at the anterior superior angle of the left parietal bone by a musket ball, a
b. 25. part of which is attached. Fragments have been removed from a space measuring three-fourths by one inch, the edges of the opening being much beveled at the expense of the inner table. The fragment of ball was removed from the tentorium after death, and is flattened and encrusted with phosphatic deposit.
Unknown: admitted hospital, Alexandria, 14th May, 1864, and died the same day.
Contributed by Acting Assistant Surgeon J. Cass.
See class **XXVII.** B. B. d.

3051. A segment of cranium, fractured by a fragment of shell at the lower border of the left parietal bone. Fragments
b. 26. have been removed, leaving an elliptical opening one inch from above downward and one-half inch in width. There is a short fissure of the inner table, with depression of one edge to the extent of one line. The edge of the opening shows marks of the action of the bone-gouge forceps. There has been no attempt at repair.
Private C. B., "H," 2d Michigan, 36: Petersburg, 17th June; admitted hospital, Washington, 21st; died, 30th June, 1864.
Contributed by Surgeon R. B. Bontecou, U. S. Vols.

2539. The vault of the cranium, showing a fracture of the frontal bone at the coronal suture, just behind the left
b. 27. frontal eminence, caused by a conoidal ball, which is attached. The opening in the bone is one inch in diameter, the amount of the vitreous table removed being the greater. The ball is traversed by a broad deep groove from point to base.
Private G. H., "E," 122d New York, 32: Cold Harbor, 3d June; admitted hospital, Washington, 7th; ball and fragments of bone removed by operation, 8th; died, 10th June, 1864.
Contributed by Surgeon J. C. McKee, U. S. Army.
See class **XXVII.** B. B. d.

1724. The vault of the cranium, fractured with depression of the inner table, just above the right parietal eminence, by
b. 28. a fragment of shell. The patient survived five months. Fragments have been removed, leaving a nearly circular opening one inch in diameter, with the edges rounded off and beveled at the expense of the inner table. Three small fragments of the inner table, depressed one-fourth inch at their free edges, remain attached and agglutinated by new ossific deposit, traces of which are seen in the immediate vicinity. Hernia cerebri and abscess of the brain were found at the autopsy.

Corporal C. C, "G," 123d New York, 24: Chancellorsville, 3d May; admitted hospital, Alexandria, 15th June; died, 2d October, 1863.

Contributed by Acting Assistant Surgeon Stillwell.

See 1725, **I.** C. B. b. 14.

865. b. 29. A segment of cranium fractured, with depression of fragments, by a musket ball, at the junction of the sagittal and lambdoid sutures. The opening in the outer table is one inch square. One-half the fractured surface has been removed; the remaining fragments, with the corresponding portion of the inner table, are depressed one fourth inch. The injury to the inner table is a little more extensive, and one small triangular fragment is depressed one-half inch at its free edge. The fractured surfaces are slightly necrosed.

Private D P., "K," 10th New York: Fredericksburg, 13th December; admitted hospital, Chester, Penna., 21st; died, 31st December, 1862.

Contributed by Surgeon J. L. LeConte, U. S. Vols.

3861. b. 30. A section of the left parietal bone, perforated near the protuberance by a musket ball, which caused fracture with depression of both tables. The fractured portion externally measures one inch in diameter; internally one and one-fourth inches. More than one-half of the fractured surface is removed; the remainder, which is composed of the outer table only, is depressed one-fourth inch.

Private H. G., "B," 53d North Carolina, (Rebel,) 30: Gettysburg, 1st July; admitted hospital, Frederick, 6th; hernia cerebri, disorganization external portion left hemisphere, death, 7th July, 1863.

Contributed by Acting Assistant Surgeon J. H. Bartholf.

3413. b. 31. The vault of the cranium, perforated at the centre of the frontal bone by a musket ball, which caused fracture with depression of the inner table and extensive fissuring. The opening measures three-fourths by one and one-fourth inches. A fragment of the outer table has been removed from the edge, and a fragment of the inner table, measuring one-fourth by one inch, is partially fractured and depressed one-fourth inch. A fissure four inches long passes upward across the coronal suture into the right parietal bone, and two others pass downward and laterally. Two fragments of bone penetrated the dura mater, and a portion of the ball was found in the substance of the brain.

Private T. B., "I," 65th New York, 30: probably Cedar Creek, Va., 19th October; admitted hospital, Baltimore, 24th; died, 25th October, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

2682. b. 32. A section of cranium, fractured at the lower border of the right parietal bone, apparently by a musket ball. Fragments have been removed for a distance of two inches from before backward and one-half inch in width, and a fragment half an inch long remains *in situ*. The inner table is fractured to a somewhat greater extent, and two small fragments remain with their free edges slightly depressed. There is caries of the fractured surface, but no distinct attempt at repair.

Private H. C., "D," 10th Pennsylvania Reserves, 26: Old Church, Va., 30th May; admitted hospital, Washington, 4th June; died, 11th June, 1864.

Contributed by Assistant Surgeon Geo. A. Mursick, U. S. Vols.

3150. b. 33. A segment of cranium, fractured, apparently by a musket ball, at the sagittal suture, one inch behind the coronal. Fragments of the outer table have been removed from a space one inch long and half an inch in width, one fragment slightly depressed remaining attached. Fragments of the inner table have been removed from a surface measuring one and a fourth by one inch. A fragment depressed one line at the free edge is attached. The left parietal is fissured through both tables from the point of injury to the posterior inferior angle. The edges of the opening show traces of attempt at repair. The autopsy demonstrated abscess in the brain.

Private O. G., "C," 16th Maine, 21: admitted hospital, Washington, 24th August; died, 30th August, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

2904. b 34. The vault of the cranium, fractured by a musket ball at the middle of the superior border of the right parietal bone. Fragments have been removed from an elliptical space measuring one by one and one-fourth inches. The posterior half of the sagittal suture is separated, and five fissures radiate from the fractured point. The edges of the opening are necrosed, cribriform and crumbling, and this condition affects the inner table over a surface two inches in diameter. An abscess was found in the brain at the autopsy.

Private T. M. J., "H," 45th North Carolina, (Rebel,) 38: wounded, 13th July; admitted hospital, Washington, 17th; died, 29th July, 1864.

Contributed by Acting Assistant Surgeon T. L. Leavitt.

2681. b. 35. A section of frontal bone fractured by musket ball, with four fragments of bone removed by operation. The opening in the bone is one inch above the left frontal eminence, and measures one inch from right to left and three-fourths of an inch antero-posteriorly. All the fragments have been removed.

Private J. R., "D," 9th Massachusetts: wounded, 12th May; admitted hospital, Washington, 13th; died, 19th May, 1864.

Contributed by Assistant Surgeon Geo. A. Mursick, U. S Vols.

1292. A section of cranium, fractured at the posterior inferior angle of the right parietal bone by a conoidal ball, which
b. 36. is attached. Fragments of bone have been removed from a space one and a fourth inches long and three-fourths of an inch wide, the edges of the opening being beveled at the expense of the inner table. A fissure of both tables passes forward to the squamous suture. One fragment of the inner table, depressed two lines at its free edge, remains attached. The inner table above the injury shows marks of extensive disease. The ball is flattened and battered.

Private W. W., "A," 159th New York, 26: Irish Bend, La., 14th April; admitted hospital, New Orleans, 17th; died, 27th April, 1863.

Contributed by Assistant Surgeon P. S. Connor, U. S. Army.

See class **XXVII.** B. B. d.

774. The vault of the cranium, showing a fracture and depression on the left side of the frontal bone above the
b. 37. protuberance. The depressed portion is ovoid, measuring externally three-fourths by one and three-fourths inches. The inner table is fractured more extensively, and the greatest depression is one-fourth of an inch. The broken portion of the outer table has been for the most part removed. The edges of the fracture are rounded externally, as are also the free edges of the inner table.

Private A. P. H., "A," 50th Georgia, (Rebel,) 21: the left humerus was badly fractured in the upper third by another ball at the same time, South Mountain, 14th September; admitted hospital, Frederick, 27th October; died, exhausted, 25th November, 1862. No cerebral disturbance occurred at any time.

Contributed by Assistant Surgeon G. L. Porter, U. S. Army.

1297. A segment of the frontal bone, fractured just above the right orbit by a conoidal ball, which lodged in the
b. 38. frontal sinus and is attached. Two fragments of bone are also shown. The opening in the bone is nearly quadrilateral, measuring one inch from right to left, and one and one-fourth inches from above downward. Both walls of the frontal sinus are perforated, and one-fourth inch of the orbital ridge is removed. A fissure of the external table extends to the temporal ridge.

Private W. A. O., "B," 25th Connecticut, 28: Irish Bend, La., 14th April; admitted hospital, New Orleans, 17th; fragments removed, 29th April; hernia cerebri appeared, 15th May; died, 21st May, 1863. The ball was found in the frontal sinus.

Contributed by Assistant Surgeon P. S. Connor, U. S. Army.

See class **XXVII.** B. B. d.

2072. A segment of cranium fractured with depression of fragments, apparently by a musket ball, at the right parietal
b. 39. eminence. The patient lived fifty-two days. Fragments have been removed, leaving an opening one-half by three-fourths of an inch. Two fragments of the inner table remain attached, depressed two lines at their free edges. The edges of the opening are necrosed and in process of separation, and slight deposits of new ossific matter appear on the inner surface.

Private P. P., "A," 1st Maryland (Rebel): Gettysburg, 1st July; admitted hospital, Chester, Penna.; died, 21st August, 1863.

Contributed by Acting Assistant Surgeon J. A. Draper.

2666. The frontal bone, perforated at the centre of the left supra-orbital ridge by a musket ball, which, with the depressed
b. 40. fragments of bone, was removed by operation. The orbital plate, with one-half inch of the orbital arch, is removed, together with a portion of the inner table one inch in diameter. A fragment of the outer table slightly depressed remains *in situ*, and a fissure passes directly backward to the coronal suture.

Private A. P., "G," 14th New Jersey, 32: Cold Harbor, 2d June; admitted hospital, Washington, 10th; fragments removed, 20th; died, 24th June, 1864.

Contributed by Acting Assistant Surgeon A. Ansell.

1719. Five fragments from the left parietal bone, necrosed in consequence of fracture by musket ball, and removed by
b. 41. operation with successful result. They include an elliptical surface of bone measuring one by two inches.

Private J. McG., "C," 1st Maryland, (Rebel,) 27: Gettysburg, 3d July; admitted hospital, Baltimore, 28th July; fragments removed by Assistant Surgeon E. Brooks, U. S. Army, 3d August, 1863.

Contributed by the operator.

1301. A section of cranium, fractured by a musket ball, with depression of fragments, one inch anterior to the right
b. 42. parietal eminence. The fractured surface measures one and three-fourth inches antero-posteriorly, and nearly one inch in width, the posterior two-thirds having been removed. A fragment of the inner table remains attached, being depressed two lines at the free edge. A fissure of both tables passes downward into the temporal bone, involving the mastoid and petrous portions and entering the auditory canal. The posterior edge of the opening presents a laminated appearance.

Sergeant J. F., "H," 14th Maine, 34: Port Hudson, 25th May; admitted hospital, New Orleans, 29th May; died, 7th June, 1863.

Contributed by Assistant Surgeon P. S. Connor, U. S. Army.

See 1302, **I.** C. A. a. 1.

3631. A section of frontal bone perforated just externally to the left frontal eminence by a musket ball, causing fracture
b. 43. with depression of both tables. The fragments were partially removed by operation. The opening in the external table measures one inch in diameter, and is partially surrounded by a narrow ring of porous and diseased bone. The fractured portion of the vitreous table measures one and a half by two inches. Two fragments remain *in situ* depressed one line. These fragments, with the surrounding bone, are covered by a thin, granular, mortar-like layer of calcareous matter.

Private W. M. B., "E," 83d Pennsylvania, 20: Petersburg, 20th June; admitted hospital and fragments removed, Philadelphia, 14th July; gangrene set in and death occurred, 27th July, 1864.

Contributed by Acting Assistant Surgeon G. P. Sargent.

See class **XXIII.** A. B.

3486. A segment of cranium necrosed at the middle of the superior border of the left parietal bone, following gunshot.
b. 44. The diseased surface of the outer table measures two by two and one-half inches, and fragments have been removed, leaving an opening three-fourths of an inch in diameter. Other fragments, almost separated, are *in situ*, and the rest of the bone is discolored, cribriform, and carious. Internally the diseased surface measures one and a fourth by two and a half inches, two square inches having been removed.

Private B. H. C., "G," 48th Illinois: wounded, 21st July; admitted hospital, Marietta, Ga., 13th August; died, 23d August, 1864.

Contributed by Surgeon A. Goslin, 48th Illinois.

3507. Six fragments from the orbital arch of the frontal bone, involving two square inches of surface.
b. 45. Contributed by Surgeon Robert Wm. Pounds.

1013. The vault of the cranium, fractured by a fragment of shell at the anterior third of the sagittal suture. Fragments
b. 46. have been removed from either side of the sagittal suture, leaving an opening two inches in length antero-posteriorly and one inch in width, and having the edges beveled at the expense of the inner table. A fragment of the inner table one inch long and one-fourth inch wide remains attached, the free edge being slightly depressed. A fissure of both tables, one and a half inches long, passes forward to the left branch of the coronal suture. The edges of the fracture are necrosed, the dead bone being in process of separation.

Private J. McC., "B," 24th Texas Cavalry, (Rebel,) 23: Arkansas Post, 10th January; admitted hospital, St. Louis, 22d January; died, 8th February, 1863.

Contributed by Surgeon John T. Hodgen, U. S. Vols.

See 1014, **I.** C. B. b. 6.

2679. A section of cranium with six fragments of bone. There is a fracture of the anterior superior angle of the right
b. 47. parietal; the opening measures one and three-fourth inches from right to left and one-half inch antero-posteriorly. All the fragments have been removed. The shape of the opening is very unusual, being nearly that of a rectangle.

Private A. E., "D," 20th Maine: Spottsylvania, 12th May; admitted hospital, Washington, 20th; died, 24th May, 1864.

Contributed by Assistant Surgeon George D. Mursick, U. S. Vols.

2565. A section of cranium, fractured just above the left extremity of the superior curved line of the occipital bone,
b. 48. apparently by a musket ball. All the fragments have been removed, leaving an opening measuring one and a half inches horizontally and one inch in width, the posterior part of the edge of which shows marks of having been cut away by the bone-gouge forceps. There is no fissuring. The surrounding portion of the inner table shows marks of diseased action.

Private E. S., 11th Vermont, 18: Cold Harbor, 3d June: admitted hospital, Washington, 10th; depressed bone elevated and missile extracted from left lateral sinus, 11th; died, 18th June, 1864.

Contributed by Surgeon N. R. Mosely, U. S. Vols.

1739. A segment of cranium, showing fracture with depression of the anterior inferior angle of the left parietal and
b. 49. corresponding portion of the frontal bones, caused by a conoidal ball, which is attached. The fractured and depressed portion measures one by one and a half inches, from which four fragments have been removed, of which the largest is *in situ*, depressed half an inch. A fissure extends diagonally across the parietal bone from the anterior inferior to the opposite angle, and another fissure passes downward. The ball, which is deeply grooved from point to base, was found at the base of the brain.

Private P. W., "F," 126th New York: Bristoe Station, Va., 14th October; admitted hospital, Alexandria, 15th; died, 19th October, 1863.

Contributed by Acting Assistant Surgeon E. P. Bigelow.

See class **XXVII.** B. B. d.

3264. The vault of the cranium fractured, apparently by a musket ball, near the anterior superior angle of the right
b. 50. parietal bone, from which death occurred on the twentieth day. Fragments have been removed a distance of two inches downward from the sagittal suture by one inch in width. The edges of the opening are cribriform and necrosed. Hernia cerebri appeared five days before death.

Private J. H., "I," 56th Pennsylvania: Petersburg, 22d June; admitted hospital, Washington, 1st July; died, 11th July, 1864.
Contributed by Surgeon G. L. Pancoast, U. S. Vols.

3729. b. 51. A segment of cranium, fractured by a conoidal ball at the superior border of the occipital bone just to the left of the median line. Fragments of bone have been removed from an elliptical opening measuring one and a half inches from above downward by one inch in width. The edges of the opening are necrosed and beveled at the expense of the inner table, and there are traces of attempt at repair. The ball lodged in the brain. This patient also suffered gunshot injury of the elbow joint.
Sergeant J. L., "I," 153d New York: admitted hospital, Baltimore, 26th October; died, 20th November, 1864.
Contributed by Acting Assistant Surgeon B. B. Miles.
See 3725, **I.** C. B. b. 20; 3718, **VII.** A. B. b. 29.

2683. b. 52. A segment of frontal bone, perforated between the frontal eminences and extensively fissured by a musket ball. The opening is elliptical, measuring three-fourths by one and a half inches, the long diameter running transversely, and from the extremities of the oval two fissures extend outward, that on the left side being three inches and that on the right two inches in length. A third fissure passes downward to the edge of the left orbit, opening both walls of the frontal sinus. The fractured surface of the inner table is the larger, inclining towards the edge of the opening.
Captain unknown (Rebel): Spottsylvania, 12th May; admitted hospital, Washington, 18th; spiculæ removed, 19th; died, 20th May, 1864.
Contributed by Assistant Surgeon G. A. Mursick, U. S. Vols.

2665. b. 53. A segment of cranium, fractured above the left meatus auditorius by a musket ball. Fragments of bone have been removed from the squamous portion of the left temporal for a distance of two and one-fourth inches from before backward, and one inch in width. The left parietal is fissured from the squamous suture to the posterior superior angle; a second fissure branches downward to the lambdoid suture. The borders of the fracture are necrosed, and the surrounding bone shows traces of disease. The ball was found just beneath the scalp, and, with the fragments of bone, was removed by operation.
Private D. L. T., "G," 12th Georgia (Rebel): admitted hospital, Washington, 8th June; died, 20th June, 1864.
Contributed by Acting Assistant Surgeon H. M. Dean.

1267. b. 54. A skull, fractured just behind the centre of the right temporal ridge of the frontal bone by a round ball, which is attached. Five fragments of bone, which were removed by operation, leaving an opening one and a half inches long by one inch in width, are attached. The edges of the opening are necrosed and in process of separation. A fissure passes downward through the great ala of the sphenoid for two inches. The ball had entered the lateral ventricle of the brain.
Corporal J. D. T., "F," 27th Indiana: Chancellorsville, 3d May; admitted field hospital, 13th; died, 21st May, 1863.
Contributed by Assistant Surgeon A. J. Gilson, 5th Connecticut.
See class **XXVII.** B. B. d.

3566. b. 55. The vault of the cranium, fractured at the middle of the right branch of the coronal suture by a musket ball, which entered the brain, causing death on the forty-first day. The fractured portion of the outer table measures two inches in length by one in width, that of the inner table being somewhat less. Two small fragments of the inner and two of the outer table remain; the rest have been removed. The surrounding bone is cribriform and slightly carious, and the edges of the opening rounded off, showing an attempt at repair. The ball was removed on the field, and the fragments of bone on the third day after the injury. Hernia cerebri appeared before death.
Private A. H., "F," 40th New York, 28: Spottsylvania, 10th May; admitted hospital, Washington, 12th May; died, 20th June, 1864.
Contributed by Assistant Surgeon Wm. Thomson, U. S. Army.

3290. b. 56. Four necrosed fragments of bone from the cranium, including nearly four square inches of surface.
Contributor and history unknown.

3451. b. 57. Three fragments from the right parietal and the squamous portion of the right temporal bones, necrosed by gangrene following gunshot, and removed by operation. They form a very irregularly shaped plate of bone, measuring four inches in its longest diameter and including about four square inches of surface, and are made up chiefly of the diploe and external table. *See figure* 20.
Private W. F., "C," 98th Pennsylvania: before Washington, 12th July; admitted hospital, 13th; hospital gangrene appeared, 21st; hæmorrhage from temporal artery, 23d July; specimen removed, 6th September; reported well, 3d December, 1864
Contributed by Assistant Surgeon C. A. McCall, U. S. Army.
See 4627, **XXVI.** A. 1, 27.
See class **XXIII.** A. B.

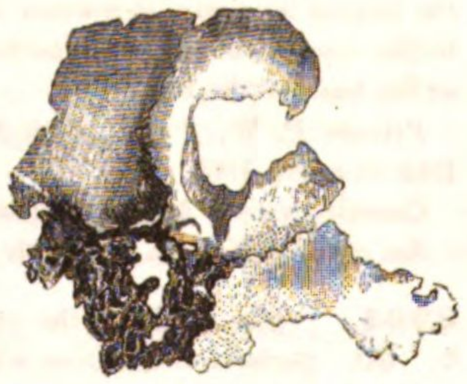

FIG. 20. Portions of cranial bones removed for necrosis after gangrene. *Spec.* 3451.

276. A cranium showing an extensive fracture of the right supra-orbital arch, caused by a conoidal ball, a small fragment
b. 58. of which is attached. The entire arch is removed, leaving an opening into the cranium two and a half inches long and one and a fourth wide, extending from the inner angle of the orbit to the anterior inferior angle of the right parietal. A fissure six inches in length passes backward into the right parietal. Nearly all the fragments have been removed. The orbital plate of the right superior maxilla is fractured and depressed, and a fissure one inch long extends down the body of the bone.

Private E. V., 55th Ohio: Second Bull Run, 30th August; admitted hospital and fragments removed, Washington, 7th September; hernia cerebri appeared, 8th; died, 25th September, 1862.

Contributed by Surgeon W. Clendenin, U. S. Vols.

See class **XXVII.** B. B. d.

2901. The vault of the cranium, fractured through the left parietal eminence by a fragment of shell, which caused death
b. 59. on the eleventh day. Fragments have been removed from a space measuring three and one-half inches downward and backward by one-half inch in width. A fissure runs from the anterior inferior angle of the left parietal nearly to the sagittal suture, and a second fissure crosses the lambdoid suture. There is no attempt at repair.

Private I. L., "I," 12th Mississippi (Rebel): wounded, 10th May; admitted hospital, Washington, 14th; died, 20th May, 1864.

Contributed by Acting Assistant Surgeon O. P. Sweet.

3859. A section of cranium, showing extensive necrosis of the right parietal
b. 60. bone following fracture by musket ball. Death occurred ninety-one days after the receipt of injury. Three large necrosed fragments remain *in situ* but entirely separated, and two have been removed. The resulting opening measures five inches antero-posteriorly, and four inches from above downward. *See figure* 21.

Private C. T., "H," 63d New York, 17: Antietam, 17th September; admitted hospital, Frederick, 28th; fragments of bone with some of the brain substance were removed and a hernia cerebri excised, 25th September; died from exhaustion, without further operation, 17th December, 1862.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

See 3553, **I.** A. B. b. 10.

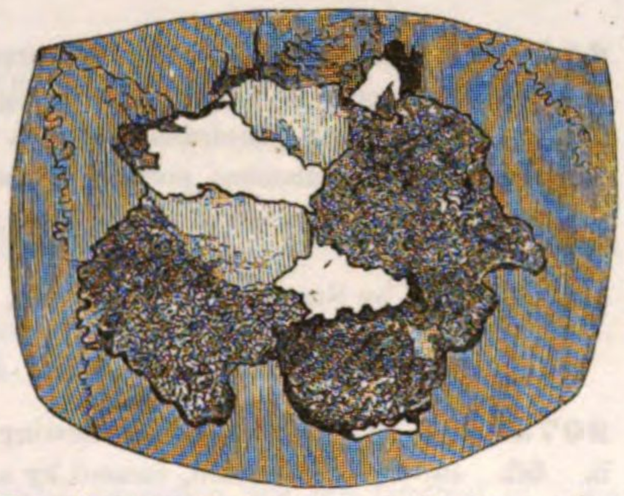

FIG. 21. Necrosis of right parietal after gunshot. *Spec.* 3859.

765. A skull fractured, as if by a musket ball, at the anterior inferior angle of the left parietal and adjoining portion of
b. 61. the frontal bones. Fragments have been removed for a distance of two inches downward and backward by three-fourths of an inch in width. The left parietal is fissured through both tables from its anterior inferior to its superior posterior angle. Traces of periosteal disturbance are seen on the inner surface, and the immediate borders of the fracture are necrosed. This man also endured a severe compound fracture of the tibia involving the ankle.

Unknown, 63d New York: Antietam, 17th September; admitted hospital, insensible, Frederick, 22d September; died, 16th October, 1862.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

See 767, **XVI.** A. B. b. 17.

2900. The vault of the cranium, penetrated and fractured by a musket ball at the posterior inferior portion of the right
b. 62. parietal bone. Fragments have been removed from a space measuring three inches upward and forward and from one to one-half inch in width, at the upper extremity of which four fragments of the inner table remain attached, depressed two lines at their free edges. One fissure passes downward into the mastoid portion of the temporal, and a second passes upward and backward to the posterior fourth of the sagittal suture.

Corporal A. C., "D," 95th Pennsylvania, 24: Spottsylvania, 12th May; admitted hospital, Washington, 19th; died, 27th May, 1864.

Contributed by Acting Assistant Surgeon R. E. Price.

1720. A section of cranium, fractured at the right temporal fossa with comminution and depression of fragments. The
b. 63. fractured surface involves the squamous portion of the temporal, frontal, parietal, and great wing of the sphenoid, measuring three and one-half inches antero-posteriorly and two inches in width. Half of the fragments have been removed; the remainder are depressed one-fourth inch in the centre. A fissure extends through the wall of the auditory canal. There are evidences of diseased action upon the inner table. Death occurred one month after injury.

Contributed by Assistant Surgeon E. Brooks, U. S Army.

236. A section of cranium, showing an extensive fracture with comminution of the frontal bone a little to the left of the
b. 64. median line, caused by a fragment of shell. The fractured surface involves five square inches of bone, the fragments of one-half of which have been removed.

Contributed by Assistant Surgeon W. Webster, U. S. Army.

3834. A section of cranium fractured by a fragment of shell near the centre of the frontal bone. Fragments have been
b. 65. removed from a space two inches in diameter, including the right frontal eminence. From the inner table the removal of bone has been more extensive, measuring three inches from above downward and inward by two inches in width, and including the posterior walls of both frontal sinuses. The anterior walls of the sinuses are comminuted, and the fragments are consolidated by new ossific deposit and are depressed from one-fourth to one-half an inch at their upper and free edges. From the upper part of the opening a fissure runs outward to the extremity of the right great ala of the sphenoid, and the fragment of frontal bone thus separated is forced outward one-fourth of an inch.

Corporal W. O K., "F," 3d Indiana Cavalry, 29: Funkstown, Md., 8th July; admitted hospital, Frederick, 18th July; died, 15th August, 1863.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

2075. The vault of the cranium, extensively fractured and comminuted by a carbine ball at the anterior inferior angle
b. 66. of the left parietal and adjoining portion of the frontal bones. The fractured surface measures four inches in diameter, and about one square inch has been removed. A fissure of both tables, two inches in length, passes into the right parietal bone.

Private E. A. P., "K," 5th Iowa Cavalry: Wateree, Tenn., 6th December; admitted hospital, Tullahoma, Tenn., 7th; died, 9th December, 1863.

Contributed by Surgeon B. Woodward, 22d Illinois.

2846. A section of cranium fractured, apparently by a musket ball, (possibly a fragment of shell,) which entered at the
b. 67. outer edge of left orbit, carrying away the orbital portion of the malar and the external angular process of the frontal bones, and penetrated the root of the left great ala of the sphenoid, carrying it away and causing fracture of the left parietal and squamous portion of the temporal. The left orbital plate of the frontal is traversed by a fracture with comminution and removal of bone. The zygoma is separated at its root, and the superior wall of the antrum is fractured and slightly depressed.

Contributed by Surgeon O. A. Judson, U. S. Vols.

See class **II.** A. a. e.

2078. A section of cranium showing a fracture of the frontal bone extending from the left frontal eminence to the right
b. 68. supra-orbital notch, caused by a conoidal ball. The fragments have been removed, leaving a gap in the outer table measuring three and a half inches in length and three-fourths of an inch in width, involving chiefly the anterior walls of the frontal sinuses, which are very large and deep. The inner table is penetrated just below the left frontal eminence, the opening being one inch long and one-half inch wide.

Private T. H. B., "E," 7th Michigan, 20: Ream's Station, Va., 23d August; admitted hospital, Washington, 28th August; a piece of ball and fragments of bone removed by operation, 3d September; died a few hours afterward.

Contributed by Acting Assistant Surgeon H. M. Dean.

2641. A segment of cranium fractured and penetrated by a musket ball at the centre of the right squamous suture.
b. 69. The fragments have been removed, leaving an oval opening measuring three-fourths of an inch by one inch externally, and having the edges beveled at the expense of the inner table. There is no fissuring.

Sergeant J. C., "B," 3d Pennsylvania Cavalry: Mine Run, 27th November; admitted hospital, Alexandria, 4th December; died, 5th December, 1863.

Contributed by Surgeon E. Bentley, U. S. Vols.

2690. A section of skull, trephined for extensive fracture of the frontal and facial bones caused by a conoidal ball,
b. 70. which entered just above the internal angle of the right eye and passed downward, inward and backward, emerging through the outer wall of the left antrum of Highmore. A disc of bone has been removed from the centre of the frontal between the superciliary ridges, and the bony walls of the nasal cavity and of the left orbit have been carried away. The inner wall of the right orbit is also wanting.

Private J. L., "A," 122d Ohio, 28: Mine Run, Va., 27th November; admitted hospital, Alexandria, 4th Deeember; trephined by Surgeon E. Bentley, U. S. Vols., 8th; died, 9th December, 1863.

Contributed by the operator.

See class **II.** A. a. b.

For other illustrations see 85, **II.** A. a. c. 6; 4627, **XXVI.** A. 1, 44; 4628, **XXVI.** A. 2, 58.

c. Trephined.

261. Disc and fragment of bone removed from the cranium by the trephine. The fragment embraces one-fourth
c. 1. square inch in surface.

Private C. L., "B," 5th New York: discharged the service, 4th January, 1864.

Contributed by Acting Assistant Surgeon D. W. Cheever.

4036. Two fragments of bone from the sagittal suture, removed by the trephine for fracture with depression
c. 2. caused by a musket ball. They include both tables, and are about one-half a square inch in surface.

Private J. G. S., "D," 209th Pennsylvania: admitted hospital, Washington, 28th March; trephined and specimen removed, 30th March; discharged the service, 26th May, 1865.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

2317. A disc and five small fragments of bone removed from the left parietal, fractured through both tables, by the
c. 3. trephine. The disc is split transversely.

Second Lieutenant W. C. V., "L," 1st Maine Heavy Artillery, 30: Spottsylvania, 17th May; admitted hospital, Washington, 22d; trephined and depressed bone elevated by Surgeon N. R. Mosely, U. S. Vols.; died, with extensive inflammation of the brain, 24th May, 1864.

Contributed by the operator.

2375. A disc and three fragments of bone, removed by trephining the right parietal bone for fracture with depression
c. 4. caused by a conoidal ball. The fragments are small and consist of diploe.

Private S. G., "C," 183d Pennsylvania, 17: Spottsylvania, 12th May; admitted hospital, Washington, 23d; twelve pieces of bone removed by the trephine by Surgeon D. W. Bliss, U. S. Vols., 24th May, 1864; transferred to Veteran Reserve Corps, 28th July, 1865.

Contributed by the operator.

4049. A disc and fragment of bone removed by trephining from the cranium of Captain A. M. W., "K," 17th
c. 5. New York: Fredericksburg, 13th December, 1862.

Contributor and further history unknown.

3362. A disc and six fragments, embracing about one-half square inch of the right parietal, removed by the trephine
c. 6. for fracture with depression from a conoidal ball.

Private H. O., "B," 36th Illinois, 23: Resaca, Ga., 15th May; admitted hospital, Nashville, 19th; trephined, death following in twelve hours, 21st May, 1864. A large abscess was found in the brain.

Contributed by Acting Assistant Surgeon H. C. May.

1125. The vault of the cranium trephined just internally to the right frontal eminence, for the removal of bone
c. 7. fractured and depressed by a musket ball. The diameter of the opening is three-fourths of an inch.

Private H. S. McC., "A," 4th Georgia, (Rebel,) 24: probably Chancellorsville, 3d May; admitted hospital, Washington, 7th; trephined for symptoms of compression, 15th; died, twenty-two hours afterward, 16th May, 1863.

Contributed by Acting Assistant Surgeon H. M. Dean.

4074. A disc and two fragments of bone removed by the trephine from the right parietal. The disc itself is in
c. 8. two portions. The fragments are chiefly from the inner table, and include one-half square inch of surface.

Private W. P., "I," 120th New York, 18: admitted hospital, Washington, 5th April; trephined by Surgeon N. R. Mosely, U. S. Vols., 6th; died, 17th April, 1865.

Contributed by the operator.

883. Five small fragments from both tables of the left parietal bone, representing nearly one square inch of surface,
c. 9. removed by the trephine.

Private ——: Antietam, 17th September, 1862; trephined, with restoration of consciousness, in hospital, West Philadelphia; died five days after the operation.

Contributed by Assistant Surgeon E. de W. Breneman, U. S. Army.

4105. A disc of bone and a serrated fragment of the inner table of the right parietal, removed by trephining for
c. 10. fracture with depression caused by a musket ball. The disc is one inch in diameter and is traversed by the line of fracture.

Private J. W., "F," 7th New York: Petersburg, 3d April; admitted hospital, Washington, 12th; trephined and dura mater punctured for escape of fluid, by Surgeon D. W. Bliss, U. S. Vols., 14th April; walking, in good condition, 3d May, 1865.

Contributed by the operator.

3600. A disc and six fragments of bone removed by the trephine from the left parietal, for fracture with depresssion
c. 11. caused by a musket ball. The fragments consist of diploe and vitreous table, and include about one-half square inch of the surface of the bone.

Private C. M. E., "H," 17th Pennsylvania Cavalry, 21: Martinsburg, Va., 25th August; admitted hospital, Annapolis Junction, Md., 27th; trephined by Acting Assistant Surgeon H. S. Streeter, 29th August; transferred to another hospital, doing well, 10th October, 1864.

Contributed by the operator.

924. The vault of the cranium, trephined for fracture with depression of the right parietal bone below and in front of
c. 12. the tuberosity caused by a musket ball. The portion of bone removed measures one and one-fourth inches from before backward, and three-fourths of an inch transversely. A fissure traverses the bone from the posterior angle to the coronal suture; from this two smaller fissures branch out.

Contributed by Assistant Surgeon C. Wagner, U. S. Army.

2383. A disc and five fragments of bone, removed by the trephine from the left parietal fractured by a musket
c. 13. ball. The largest fragment is from the inner table and measures three-fourths by one and one-fourth inches. The disc is one inch in diameter and includes the outer table and diploe only.

Corporal P. D. L., "M," 1st Maine Heavy Artillery: Spottsylvania, 19th May; admitted hospital, Washington, 23d; trephined by Surgeon D. W. Bliss, U. S. Vols., and clot of blood resting on the dura mater removed, 31st May; died of pyæmia, 8th June, 1864.

Contributed by the operator.

1474. A disc and five fragments of bone, removed from the anterior portion of the left parietal by trephining.
c. 14. One and a half square inches of the internal table were removed.

Private J. F. D., "E," 178th New York, 37: wounded by a conoidal ball, 12th July; admitted hospital and trephined by Surgeon D. W. Bliss, U. S. Vols., 13th July, 1863.

Contributed by the operator.

4256. A section of cranium, showing fracture with depression of the posterior border of the right parietal bone
c. 15. caused by a musket ball. A disc of bone removed by the trephine is *in situ*. The inner table is fractured and depressed for one square inch of its surface, and there are two radiating fissures.

Private J. B., "D," 9th West Virginia, 18: Winchester, 20th July; admitted hospital, Cumberland, Md., 23d; trephined by Surgeon J. D. Lewis, U. S. Vols., 28th July, 1864. The dura mater was found perforated and the brain lacerated.

Contributed by the operator.

3305. A disc and six fragments, removed by the trephine from the right parietal bone for gunshot fracture.
c. 16. Private J. H. D., "B," 2d New York Heavy Artillery: wounded, 7th June; trephined, near Alexandria, 9th; died, 11th June, 1864.

Contributed by Surgeon D. P. Smith, U. S. Vols.

2302. A disc and three fragments of bone, removed from the cranium by the operation of trephining. The largest
c. 17. fragment is from the inner table, and is one inch in diameter.

Private M. M., "C," 48th Pennsylvania: died in hospital, Washington, 10th May, 1864.

Contributed by Surgeon O. A. Judson, U. S. Vols.

3308. The vault of the cranium, showing a fracture of the anterior superior angle of the left parietal bone, with
c. 18. a depressed fragment of the internal table, for the removal of which a trephine has been applied. The disc removed by the trephine and the fractured bone are *in situ*. The depressed fragment measures one-fourth by one and one-fourth inches, and forms a part of the groove for the superior longitudinal sinus.

Private J. A. W., "B," 13th Tennessee Cavalry: Fort Pillow, Tenn., 12th April; hæmorrhage occurred, Mound City, Ill., 19th; trephined by Surgeon H. Wardner, U. S. Vols., 20th; died, 21st April, 1864.

Contributed by the operator.

3040. A section of the cranium, with a conoidal ball suspended in a perforation of the occipital bone above the superior
c. 19. curved line and one inch to the right of the centre. The opening measures one inch by one and one-fourth inches, and is partly caused by the operation of trephining for the removal of the depressed bone and impacted ball. A fissure passes downward and inward to the foramen magnum.

Corporal J. C. H., "E," 2d New York, 37: Wilderness, 4th May; admitted hospital, Washington, 19th; trephined by Surgeon R. B. Bontecou, U. S. Vols., 21st; but the ball was not removed, through fear of hæmorrhage, until 26th May; died, 4th June, 1864.

Contributed by the operator.

See class **XXVII.** B. B. d.

534. A segment of cranium trephined for fracture with depression of the left parietal bone behind and below the
c. 20. eminence, caused probably by a musket ball. The fractured portion of the inner table measures three-fourths by one inch and is partly included in the disc removed by the trephine. The outer table is injured to a less extent.

Private P. H., "E," 9th Pennsylvania Reserves, 28: Fredericksburg, 13th December; admitted hospital, Washington, 15th; trephined by Surgeon J. A. Lidell, U. S. Vols., 18th; died, 22d December, 1862.

Contributed by the operator.

3635. A section of the left parietal, trephined for fracture with depression in front of the tuberosity caused by a musket
c. 21. ball. The fractured portion removed measures one-half by one inch. The crown of the trephine has not cut through the inner table.

Corporal H. L. P., "K," 1st Massachusetts Heavy Artillery: Petersburg, 19th June; admitted hospital, Philadelphia, 22d; trephined, dying in a few hours, 27th June, 1864.

Contributed by Acting Assistant Surgeon George Kerr.

528. The vault of the cranium, with one disc and seven fragments of bone removed by the use of the trephine from
c. 22. the left parietal bone, just below the tuberosity, for fracture with depression. One and one-half square inches of bone have been removed; one-third by the trephine, the rest in small fragments.

Private P. R., "I," 10th New Jersey: Fredericksburg, 13th December; admitted hospital, and trephined by Surgeon J. H. Brinton, U. S. Vols., 19th; died, 22d December, 1862.

Contributed by Surgeon J. C. Dorr, U. S. Vols.

See 966, **I.** C. B. b. 5; 965, **I.** C. B. 21.

1333. A section of the cranium, trephined for the removal of fractured and depressed portions of the parietal bones at
c. 23. their junction and near the coronal suture. The depressed fragment is one and a fourth inches in length by one-fourth of an inch in breadth, and has perforated the longitudinal sinus. A part of the ball and some fragments of bone were removed on the field.

Private B. K., "G," 6th Ohio Cavalry, 21: Middleburg, Va., 21st June; admitted hospital, Washington, 24th; trephined by Surgeon John A. Lidell, U. S. Vols., 26th; died, 27th June, 1863.

Contributed by the operator.

922. A section of cranium showing fracture of the frontal bone at the right temporal ridge, caused by a musket ball.
c. 24. A trephine has been applied over the centre of the superciliary ridge and the depressed bone removed. A fragment of bone, measuring one square inch and consisting of portions of the temporal fossa and the external wall of the orbit, has been forced outward. The fractured bone removed is three-fourths of an inch in diameter.

Contributed by Assistant Surgeon C. Wagner, U. S. Army.

131. A partially trephined segment of the right parietal bone, with five fragments, embracing one square inch, removed
c. 25. by operation. There was a depressed fracture with extensive fissures, three of which extend to the edge of the section. The outer table and diploe were cut through, but not removed, by the trephine applied on the sound bone at the edge of the fracture.

Private L. C., "B," 2d Pennsylvania Reserves: Chantilly, Va., 1st September; admitted hospital, Washington, 4th; trephined by Surgeon I. Moses, U. S. Vols., 10th; died, 13th September, 1862.

Contributed by the operator.

496. The vault of the cranium, with a disc and twelve fragments removed by the trephine, from the left parietal bone
c. 26. at the tuberosity, for a fracture from a conoidal ball. The opening of the operation measures three-fourths by one and one-fourth inches, and a fissure traverses the bone diagonally from the anterior superior to the posterior inferior angle. A depressed fragment with sharp edges is attached to the inner surface of the disc.

Private W. H., "C," 4th Michigan: Fredericksburg, 13th December; admitted hospital, Washington, 17th; trephined, 19th; died, 21st December, 1862.

Contributed by Assistant Surgeon Samuel A. Storrow, U. S. Army.

2612. A section of cranium, trephined for gunshot fracture of the frontal bone just below the right temporal ridge.
c. 27. Fragments have been removed from a space measuring one by one and one-fourth inches. The inner surface of the edge of the opening is slightly cribriform. There is no fissuring.

Sergeant A. B., "A," 5th Michigan, 24: Mine Run, Va., 27th November; admitted hospital, Alexandria, 4th December; trephined, 8th; died, 14th December, 1863.

Contributed by Surgeon E. Bentley, U. S. Vols.

For other illustrations see 1563, **XXVII.** B. B. d. 150.

d. Secondarily Fatal without an Operation.

3220. A segment of cranium perforated below and behind the left parietal eminence by a small pistol ball. The opening
d. 1. externally is circular and one-fourth of an inch in diameter, the edges being beveled at the expense of the inner table to the diameter of one-half inch. No loose fragments remain, and there is no fissuring. The bullet, which was battered by its contact with the bone, passed diagonally downward and forward through both hemispheres of the brain, and was found after death lying against the pia mater on the right side.

J. A., colored, (quadroon,) 21: wounded in the thigh and head, and admitted hospital, Alexandria, 25th December; was conscious when admitted, but stupor gradually increased until death, 30th December, 1865.

Contributed by Surgeon Edwin Bentley, U. S. Vols.

See 3221, **I.** C. B. b. 16.

3117. A segment of cranium fractured at the middle of the upper border of the left parietal bone, apparently by a musket
d. 2. ball. A fragment of the outer table, measuring one-half by one inch, is depressed and *in situ*. A portion of the inner table, three-fourths of an inch in diameter, is wanting.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

1904. A segment of the posterior portion of the cranium, showing a nearly circular fracture of both tables just above
d. 3. and to the left of the occipital protuberance, caused by a glancing musket shot. The broken bone is detached and lies in the wound. The internal surface of the opening, which measures one inch in diameter, is slightly the larger.

Private J. F. W., "H," 3d Maine: near the Rapidan, Va., 27th November; admitted hospital, Alexandria, 4th December; died from meningitis, 6th December, 1863.

Contributed by Acting Assistant Surgeon J. Cass.

1293. A section of the frontal bone penetrated at its left eminence by a
d. 4. round ball, which is impacted, nearly severed into two equal parts as if by the edge of the fractured bone, causing a fracture of three-fourths by one inch of the inner table with a depression of half an inch of the free edge. The external fracture is three-fourths of an inch in diameter. The ball was removed on the field.

The contributor remarks of the ball, that it was "probably cut before being fired, as it is reported that such balls are used by the enemy." *See figure* 22.

Corporal J. N., "H," 159th New York, 18: Irish Bend, La., 14th April; admitted hospital, New Orleans, 17th; died, with a large abscess of the brain, 2d May, 1863.

Contributed by Assistant Surgeon P. S. Connor, U. S. Army.

See class **XXVII.** B. B. d.

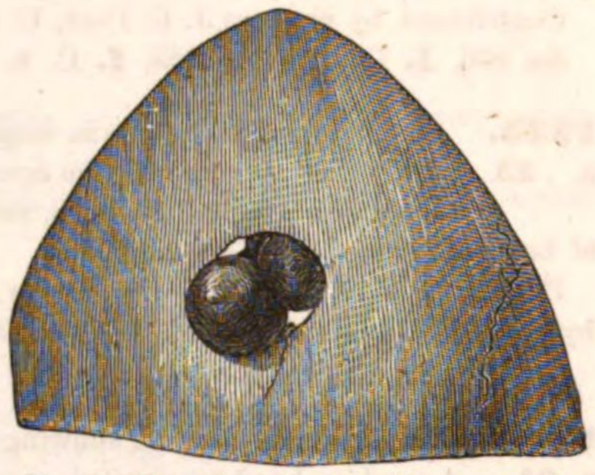

FIG. 22. Frontal bone with split round ball. *Spec.* 1293.

161. A segment of cranium fractured at the mastoid portion of the left
d. 5. temporal, probably by a musket ball. Death occurred on the nineteenth day from erysipelas. The injury of the outer table involves a little over one square inch of surface. Two fragments are attached. The injured surface of the inner table includes the groove for the lateral sinus, and measures one by one and one-fourth inches. The free edge of one fragment is depressed two lines; one small fragment is wanting, the others are *in situ*. There is necrosis of the fractured surfaces. *See figure* 23.

Private T. M.: wounded, 16th September; died, 4th October, 1862.

Contributed by Assistant Surgeon C. A. McCall, U. S. Army.

See class **XXIII.** A. A.

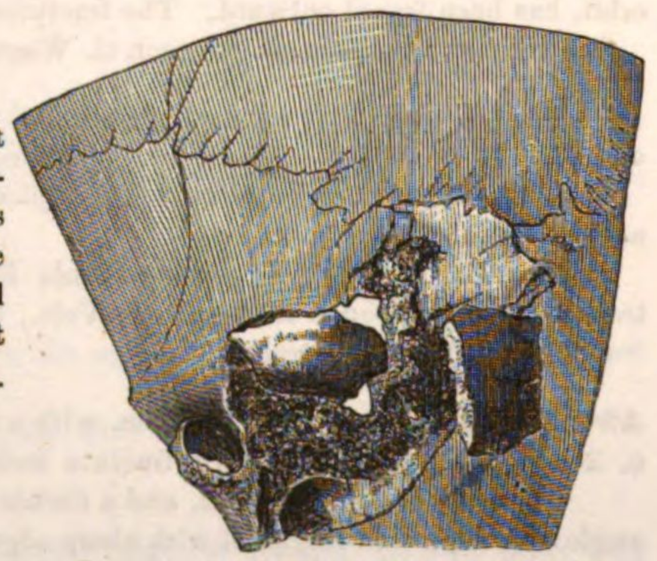

FIG. 23. Fracture of mastoid portion of left temporal. *Spec.* 161.

3747. A section of frontal bone, perforated and fractured by a musket ball just below the left parietal eminence.
d. 6. The opening measures one-half inch in each direction, with two radiating fissures, each three-fourths of an inch long, passing downward and outward and upward and outward. A small semi-lunar fragment is *in situ*. Nearly two square inches of the inner table are wanting, including the posterior wall of the left parietal sinus.

Private E. G., 18th Indiana Battery, 25: accidentally wounded and admitted hospital, Nashville, 7th January; died, 14th January, 1865.

Contributed by Assistant Surgeon C. C. Byrne, U. S. Army.

1137. Five fragments of the right parietal bone with a round bullet, as if from spherical case. The largest
d. 7. fragment of bone measures one-half inch in diameter, and is itself made up of seven smaller fragments. The bony fragments were removed at the autopsy. The ball was found embedded in the brain.

Sergeant C. B. H., "D," 127th Pennsylvania, 22: Second Fredericksburg, 1st May; admitted hospital, Washington, 6th; died, 11th May, 1863.

Contributed by Surgeon John A. Lidell, U. S. Vols.

See class **XXVII.** B. A. c.

1734. The vault of the cranium, with three fragments of inner table from the frontal bone, which is fractured by
d. 8. a musket ball just in front of the junction of the sagittal and coronal sutures. The fractured and depressed portion measures three-fourths by one inch. A fissure one inch in length runs downward in the centre of the frontal bone. The fragments removed consist entirely of diploe and inner table, and were found driven into the substance of the brain. The fragments of the outer table remain *in situ*.

Colonel T. R., 1st North Carolina Cavalry, (Rebel,) 37: Bristoe Station, Va., 14th October; admitted hospital, Alexandria, 15th; died suddenly, 18th October, 1863.
Contributed by Acting Assistant Surgeon F. H. Stillwell.

1344. The vault of the cranium, fractured at the posterior half of the left squamous suture by a musket ball.
d. 9. The line of section of the specimen passes through the fractured bone, only the upper part of which is shown. The fracture is about two and a half inches long, with slight radiating fissures.
Private H. S., "F," 86th New York, 25: died in hospital, Washington, 28th June, 1863.
Contributed by Surgeon G. S. Palmer, U. S. Vols.

324. A segment of cranium, showing a shell fracture with depression of the right parietal bone in front of the
d. 10. protuberance. The depressed portion of the external table measures three-fourths by two inches, and is driven in to a depth of three lines. The inner table is a little more extensively fractured. The fragments are necrosed.
Private —— B., 12th Massachusetts: Second Bull Run, 28th August; died, Georgetown, 2d November, 1862.
Contributed by Assistant Surgeon B. A. Clements, U. S. Army.

2574. A segment of cranium fractured by a conoidal ball, which entered just above the nasal spine of the frontal
d. 11. bone, carried away both frontal sinuses and a portion of the left orbital plate, destroyed that eye, and escaped near the angle of the left ramus of the lower jaw. A fragment, three-fourths by one inch, of the posterior wall of the right sinus is depressed half an inch at its free edge.
Private L. W., 10th Vermont, 33: Cold Harbor, 3d June; admitted hospital, Washington, 16th June, 1864; died the same day.
Contributed by Surgeon J. C. McKee, U. S. Army.

139. A segment of cranium penetrated at the squamous portion of the left temporal by a musket ball, portions
d. 12. of which are embedded in the depressed fragments of bone. The line of section of the specimen passes through the fracture, only a part of which is shown. Three fragments are *in situ*, two of them depressed about one-fourth inch.
Contributed by Surgeon O. A. Judson, U. S. Vols.
See class **XXVII** B. B. d.

1824. A segment of cranium, showing a fracture just above the mastoid portion of the left temporal bone caused
d. 13. by a musket ball. There is an elliptical opening measuring three-fourths by one inch, below which are three small fragments still *in situ*. The edges of the fracture are somewhat rounded, exhibiting evidence of attempts at repair. An abscess was found in the left ventricle of the brain communicating with the external injury.
Sergeant P. W. N., "C," 1st Ohio Cavalry, 24: Culpeper, Va., 13th September; admitted hospital, Washington, 15th; died, 20th September, 1863.
Contributed by Surgeon D. W. Bliss, U. S. Vols.

3257. A section of cranium fractured by a conoidal ball, which entered the nose carrying away a part of the
d. 14. vomer, the lachrymal and orbital plate of the ethmoid bone on the left side, the root of the left great ala and pterygoid process of the sphenoid, and is impacted in the left temporal bone at the base of the petrous pyramid, which is split off and forced backward one-fourth inch. There is fissuring of the auditory canal and mastoid process, and of both tables of the occipital for two inches backward and upward. A fissure crosses the body of the sphenoid, the cells of which are freely opened, and a second fissure traverses the left orbital plate and part of the temporal ridge of the frontal. The left antrum is opened above and behind, and the turbinate bones on the left side are almost entirely removed.
Private W. W., "M," 1st Pennsylvania Cavalry: admitted hospital, Washington, 20th September; died, 26th September, 1864.
Contributed by Acting Assistant Surgeon H. M. Dean.
See class **II.** A. A. b.

216. A section of frontal bone perforated just above the inner angle of the right orbit by a round ball, which
d. 15. is attached lying in the right frontal sinus. The fractured portion externally measures one inch in diameter, and three depressed fragments of the anterior wall of the sinus remain attached to the edge of the opening. Two square inches of the inner table have been carried away, including a portion of the orbital plate and the posterior wall of the sinus A fissure extends downward through the entire thickness of the supra-orbital arch, and a second fissure traverses the plate of bone between the frontal sinuses.
Private T. J. C., 28th New York: Antietam, 17th September; admitted hospital, Philadelphia, 26th September; died, from abscess of the brain, 4th October, 1862.
Contributed by Surgeon Jos. Hopkinson, U. S. Vols.
See class **XXVII.** B. B. d.

3254. A section of cranium, showing penetration and fracture of the left temporal bone just above and including
d. 16. the meatus auditorius externus, with fracture of the occipital by contre-coup, caused by a conoidal ball, which is attached. The opening is just above the root of the zygoma and is three-fourths of an inch in diameter. The condyle of the lower jaw and the posterior half of the glenoid fossa are carried away, together with the extremity of the petrous portion of the temporal bone, the line of fracture passing through the internal meatus auditorius. From the left jugular foramen two lines of fracture pass to the foramen magnum, one in front of and the other behind the condyle. On the right side the occipital bone is traversed by a fracture which runs from the foramen magnum to the posterior angle of the right parietal.

Unknown: autopsy made at Lincoln General Hospital, Washington, 22d September, 1864. The ball was found in the parotid gland. The left hemisphere of the brain was softened.

Contributed by Acting Assistant Surgeon H. M. Dean.

See **A′**.

See class **XXVII.** B. B. d.

3358. A cranium penetrated and fractured just in front of the anterior inferior angle of the right parietal bone
d. 17. by a conoidal ball, which is attached. A plate from the central portion of the frontal bone, measuring four and one-half inches in diameter, has been detached and displaced outward. A fissure passes downward, separating a part of the great ala of the sphenoid and the squamous portion of the right temporal. Upon the left greater wing of the sphenoid, nearly opposite the point of entrance of the ball, is a discolored spot with a fissure in the centre, marking the point struck by the ball after it had traversed the cranial cavity.

Private J. D., "G," 5th Tennessee, (Rebel,) 30: Tunnel Hill, Ga., 30th April; admitted hospital, Nashville, 5th May; died, 15th June, 1864.

Contributed by Surgeon R. L. Stanford, U. S. Vols.

See class **XXVII.** B. B. d.

685. A section of skull penetrated at the right temporal fossa by a round ball, which has passed through the
d. 18. extremity of the great wing of the sphenoid and is lodged in the middle fossa of the base of the cranium. The opening in the cranial wall measures one inch from above downward, and three-fourths of an inch in width. From this point one fissure passes downward across the glenoid cavity, and a second forward into the external wall of the right orbit, which is comminuted. The ball is incrusted with calcareous matter. There has been no attempt at repair.

Private A. M, "D," 155th Pennsylvania: Fredericksburg, 13th December; admitted hospital, Washington, 17th; died, 20th December, 1862.

Contributed by Acting Assistant Surgeon J. H. Jamar.

See class **XXVII.** B. B. d.

2891. A section of cranium perforated at the centre of the left supra-orbital ridge by a musket ball. One inch of
d. 19. the supra-orbital arch is carried away, and the opening involves one square inch of the external table. The opening internally is a little larger; part of the orbital plate is absent, the left frontal sinus is opened, and a fissure extends inward to the cribriform plate of the ethmoid. The bone immediately around the opening is cribriform and is covered with a thin chalky layer of new formation.

Private C. A. S., "D," 46th New York, 25: admitted hospital, Washington, 1st July; died, 27th July, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

3373. A section of skull, showing fracture and comminution of the inter-orbital septa and of the right orbital plate of
d. 20. the frontal bone, caused by a conoidal ball, a portion of which is attached lying in the upper part of the right orbit. The nasal, lachrymal and greater part of the ethmoid bones have been carried away, together with the right orbital plate of the frontal and part of the right wing of the sphenoid, making an opening into the cranial cavity measuring one and a half by two inches. The inferior wall of the right orbit is fractured and driven downward into the antrum. A considerable part of the battered ball is lodged in the sphenoidal sinus.

Sergeant J. R. B., "A," 55th Virginia, (Rebel,) 26: admitted hospital, Washington, 8th October; died, 29th October, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

See class **XXVII.** B. B. d.

1108. A segment of cranium with a
d. 21. conoidal ball impacted in the ethmoid between the body of the sphenoid and the left orbital plate of the frontal bones. The ball entered, point first, through the right orbital plate of the ethmoid, the resulting opening being narrowed by osseous deposit. The left orbital plate of the ethmoid is pressed outward and fractured, the fracture being nearly consolidated by new bone. A fissure in both

FIG. 24. Wound of entrance of conoidal ball through right orbit, narrowed by osseous deposit. *Spec.* 1108.

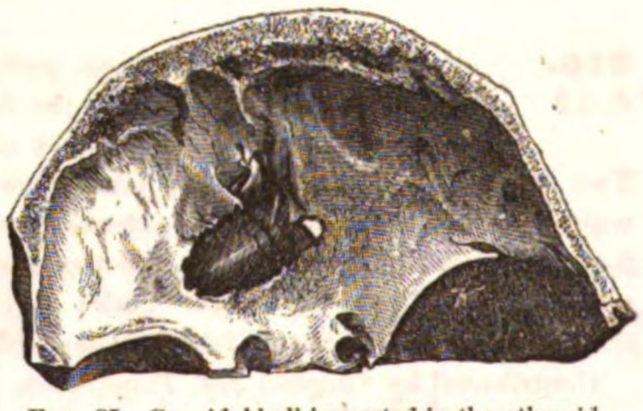

FIG. 25. Conoidal ball impacted in the ethmoid. *Spec.* 1108.

tables passes obliquely upward and to the right from the left lachrymal bone through the walls of the frontal sinuses, being two inches in length. A thin layer of ossific deposit covers the inner table in the immediate vicinity of the ball, which last is exposed and projects internally for nearly half its circumference. This case is exceedingly remarkable in the absence of all cerebral symptoms until five days before death. The penetration of the cranium was not suspected during life. *See figures 24 and 25.*

Corporal G. W. S., "A," 12th Massachusetts, 29: Fredericksburg, 13th December; admitted hospital, Baltimore, 19th December, 1862; died, 10th February, 1863.

Contributed by Acting Assistant Surgeon G. W. Dare.

See 4627, **XXVI.** A. 1, 1.

See class **XXVII.** B. B. d.

For other illustrations see 2899, **II.** A. A. b. 5; 3851, **III.** A. B. a. 20; 4041, **XIII.** A. B. d. 7; 1288, **XXVII.** B. B. d. 20; 1027, **XXVII.** B. B. d. 79.

e. Other Cases.

For illustration see 4715, **XXVII.** B. B. d. 114.

C. Perforations of the Cranium.

a. Primarily fatal.
b. Operated upon.
c. Secondary results without an operation.

a. Primarily Fatal.

2032. A cranium perforated by a small hunting rifle ball, which entered just below the left parietal protuberance and
a. 1. emerged half an inch in front of the anterior inferior angle of the right parietal. The first opening is half an inch in diameter, with slight stellate fissuring; the opening of exit is slightly larger, with two fissures, each one inch in length, running in opposite directions. A part of the squamous portion of the left temporal is wanting, but this is probably not due to any injury inflicted before death.

From a child, twelve years old, killed in the Mountain Meadow Massacre, where one hundred and eighteen men, women and children, of a party of emigrants from Arkansas, were murdered by the Mormons and Indians, in Southern Utah, in the fall of 1857.

Contributed by Surgeon B. A. Clements, U. S. Army.

4384. A cranium perforated by three small rifle balls. One entered at the anterior inferior angle of the left parietal and
a. 2. passed out behind the mastoid process of the right side; the second entered just below the right frontal eminence and fractured the occipital behind the left condyle; the third entered an inch below and behind the right parietal eminence, and appears to have lodged at the inner angle of the left orbit, the corresponding wall of which is shattered. The openings of entrance are about one-third of an inch in diameter, with little or no fissuring. The occipital is comminuted on either side of the foramen magnum; and a small fragment of the orbital plate of the frontal is driven into the frontal sinus. The sagittal suture is open to the root of the nose, forming in effect two frontal bones. The specimen bears the marks of fire, from the burning of the prairie about six months before it was picked up.

From the skeleton of an unknown man found at Mesita Blanca, in the Comanche country, on the caravan route to Santa Fé.

Contributed by Assistant Surgeon H. E. Brown, U. S. Army.

1768. A cranium perforated by a pistol ball, which is attached. Suicide was committed by placing the muzzle of the
a. 3. pistol in the mouth and firing backward and upward. The ball carried away a large part of the bony palate, entered the cranium at the junction of the left great wing with the body of the sphenoid bone, and passed out just above the left parietal eminence. The turbinated bones and inner wall of the left orbit are comminuted by the force of the explosion and in great part removed, and a fissure of both tables passes from the right frontal eminence through the bodies of the ethmoid and sphenoid bones. There are two fissures of the petrous portion of the left temporal, and a fissure extends from the anterior root of the zygoma to the sagittal suture, including in its course the wound of exit. At the wound of exit the outer table is more broken than the inner. Death was almost instantaneous; the ball was found under the scalp.

Private C. B., "A," 1st District of Columbia Cavalry: committed suicide from intemperance, while on a scout in Virginia, 7th November, 1863.

Contributed by Surgeon M. K. Hogan, U. S. Vols.

830. A skull traversed by a musket ball, which has entered at the centre of the left branch of the coronal suture and
a. 4. passed out at the posterior inferior angle of the right parietal bone, the opening of entrance being three-fourths of an inch and that of exit one and one-fourth inches in diameter. There is fracture of the right orbital plate of the frontal, of the squamous portion of the right temporal, and of the body of the right superior maxilla, probably by contre-coup. A fracture of the occipital bone extends from the opening of exit to the right jugular foramen.

Contributed by Surgeon Jerome B. Green.

See **A'**.

See class **II.** A. A. e.

849. A skull perforated and extensively fissured, apparently by a musket ball which entered one inch above and a
a. 5. little behind the middle of the lower border of the left parietal bone and passed out above and in front of the right parietal eminence. The opening of entrance is three-fourths of an inch in diameter. That of exit is one inch in diameter, the edge being beveled at the expense of the outer table. From the opening of entrance one fissure of both tables passes to the internal angle of the left orbit, a second to the posterior inferior angle, a third to the posterior fourth of the superior border, and a fourth to the anterior superior angle of the left parietal bone, the latter continuing through the frontal to the great ala of the sphenoid, which, together with the posterior portion of the right orbital plate, is separated and removed. Another fissure separates the squamous portion of the right temporal bone.

Contributed by Surgeon Jerome B. Green.

1218. A cranium perforated by a musket ball, which entered just above the anterior inferior angle of the right parietal
a. 6. and emerged below and behind the protuberance of the left parietal bones. The opening of entrance is one inch in diameter; that of exit, the edge of which is beveled at the expense of the outer table, one and one-fourth inches. A fissure extends from the first opening to the centre of the superior curved line of the occipital bone.

Unknown, Lieutenant, 2d South Carolina (Rebel): killed at South Mountain, 14th September, 1862.

Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

1317. A cranium traversed from above downward by a rifle ball, which entered the frontal bone one and a half inches
a. 7. above the right frontal eminence and passed out at the base of the skull through the junction of the body with the right great ala of the sphenoid bone, just in front of the extremity of the petrous portion of the right temporal. The superior opening is elliptical, measuring one-half by one inch; the inferior is nearly circular, and is one and a half inches in diameter.

Unknown, Longstreet's Corps (Rebel): Second Bull Run, 30th August, 1862.

Contributed by Surgeon F. Wolf, 39th New York.

848. A cranium perforated and extensively fractured, apparently by a musket ball which entered the occipital bone a
a. 8. little to the left of the centre of the superior curved line and passed out to the right and in front of the foramen magnum, carrying away the basilar process and the extremity of the petrous portion of the right temporal bone. The anterior portion of the margin of the foramen magnum, including both condyles, is removed. The left parietal is divided into three nearly equal parts by fissures which radiate from the parietal eminence; one to the opening of entrance of the ball, one to the middle of the sagittal suture, and one to the anterior inferior angle.

From the battle-field of Bull Run.

Contributed by Surgeon Jerome B. Green.

1318. A cranium extensively fractured, probably by a musket ball, which
a. 9. entered an inch above the centre of the posterior border of the left parietal and passed out through the squamous portion of the left temporal, comminuting and carrying it away, together with a part of the great ala of the sphenoid. The left parietal is fissured and comminuted. The petrous portion of the left temporal is fractured at the base, and the mastoid portion is split in two. The right orbital plate is separated and slightly depressed, and there are two fissures one inch in length, one behind and the other in front of the right external angular process of the frontal, with another through the body of the superior maxilla. These last injuries are not in any way connected with the track of the missile, and were probably caused by contre-coup. *See figure* 26.

Unknown, Longstreet's Corps (Rebel): killed at Second Bull Run.

Contributed by Surgeon Fred. Wolf, 39th New York.

See 4627, **XXVI.** A. 1, 21.

See **A'**.

See class **II.** A. a. e.

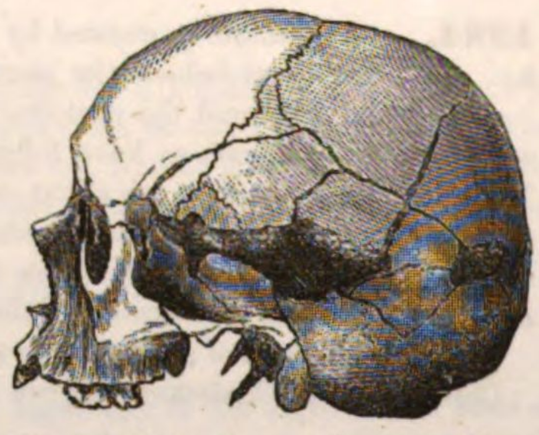

FIG. 26. Perforation with extensive fracture of the cranium by a musket ball. *Spec.* 1318.

1167. A cranium perforated and extensively fractured, probably by grape shot, which entered at the posterior inferior
a. 10. angle of the left parietal bone and passed out at the right orbit, carrying away the petrous portion of the left temporal, the body of the sphenoid, the ethmoid, the right malar, all the bones composing the nasal fossæ and the upper, inner and lower walls of the orbits, and the body of the right superior maxilla. The occipital bone is traversed by a fissure which crosses the foramen magnum. The frontal, left parietal and left temporal bones are comminuted.

Unknown (Rebel): killed at Antietam.

Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

3251. A cranium perforated and extensively fractured, apparently by a musket ball, which entered at the antero-
a. 11. inferior angle of the right parietal and passed out at the posterior fontanelle. The cranial wall around the point of entrance is comminuted and removed for eight square inches of its surface, including the squamous portion of the temporal and the extremity of the great ala of the sphenoid. The opening of exit is one inch in diameter, the edge being beveled at the expense of the outer table. A fissure of both tables crosses the frontal bone below the

eminence and extends into the mastoid process of the left temporal. A second fissure branches downward through the left supra-orbital ridge. Both superior maxillaries are fissured by indirect violence. Other fissures involve the occipital, the petrous portion of the left temporal and both parietal bones.

Unknown: killed at the Second Bull Run.

Contributed by Acting Assistant Surgeon F. Schafhirt.

See **A′**.

860. A cranium perforated and extensively fractured, apparently by a fragment of shell which entered at the
a. 12. centre of the superior border of the frontal and passed out at the right side of the base of the skull, carrying away the right temporal, the malar and the ethmoid bones, also the processes of the sphenoid on the right side, the walls of the right orbit and the inferior border of the right parietal bone. The opening of entrance measures two and one-half inches antero-posteriorly by three-fourths of an inch in width. The vault of the cranium is entirely separated by a fissure which traverses the frontal just below the eminences, the squamous portion of the left temporal and the occipital, including the foramen magnum.

From the battle-field of Bull Run.

Contributed by Surgeon Jerome B. Green.

1166. A skull extensively fractured by a missile which has traversed the base of the cranium from the left temporal
a. 13. fossa to the right meatus auditorius externus, carrying away the sphenoid and ethmoid bones, the vomer, lachrymal, and turbinated bones, the right orbital plate of the frontal, and the squamous portion of the right temporal. The petrous portions of both temporals are fractured. The vault of the cranium is fractured into four large fragments.

Unknown (Rebel): killed at Antietam.

Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

See class **II.** A. A. a.

1319. A portion of cranium, the remainder of which is supposed to have been carried away by shell. It includes
a. 14. the occipital, the mastoid and petrous portions of the left temporal, the body of the sphenoid, and the posterior half of the left parietal bones.

From the battle-field of the Second Bull Run.

Contributed by Surgeon F. Wolf, 39th New York.

b. Operated Upon.

3516. A disc of bone one inch in diameter removed by the trephine from the right parietal, after perforation by a
b. 1. bullet which entered near its superior border and escaped at its union with the occipital.

Private F. E., "M," 4th Pennsylvania: Petersburg, 25th November; admitted hospital, Washington, 16th December; trephined, by Surgeon D. W. Bliss, U. S. Vols., 18th; died, 20th December, 1864.

Contributed by the operator.

c. Secondary Results without an Operation.

2928. A cranium perforated and extensively comminuted, apparently by a musket ball which entered at the posterior
c. 1. superior angle of the left parietal and passed out just above the middle of the left squamous suture. Four lines of fracture radiate in a fan-like manner from the opening of entrance, the upper line passing to the coronal suture half an inch to the left of the sagittal; the next passing to the anterior inferior angle of the parietal and curving around to the left frontal eminence; the third to the middle of the squamous suture; and the fourth nearly to the posterior inferior angle. Other lines of fracture pass at right angles to these, dividing the left parietal bone into twelve fragments. There are some marks of diseased action, which show that the injury was not immediately fatal.

Contributor and history unknown.

4257. A skull perforated by a musket ball, which entered at the middle of the inferior border of the right parietal
c. 2. and passed out just behind its posterior inferior angle, leaving a bridge of bone one and three-fourths inches wide. Fragments have been removed from the wound of entrance for two inches by three-fourths of an inch. Posteriorly the fractured surface measures two by three inches, the greater portion of the fragments being *in situ*. There are two short fissures of the parietal, and one of the occipital involving both tables and extending nearly to the foramen magnum.

Second Lieutenant H. W. T., "E," 23d North Carolina, (Rebel,) 28: Winchester, 20th July; admitted hospital, Cumberland, Md., 23d; died, 30th July, 1864.

Contributed by Surgeon J. B. Lewis, U. S. Vols.

2905. A cranium traversed by a musket ball, which entered just in front of the centre of the right branch of
c. 3. the coronal suture and passed out through the posterior angle of the right parietal, leaving a bridge of fractured bone two and a half inches wide. The entire surface fractured measures six inches antero-posteriorly,

and from three-fourths of an inch to two inches in width. Two large fragments remain *in situ*. The edges of the fracture are necrosed, and the surrounding bone is porous and shows traces of the formation of a line of demarcation.

Private H. H., "E," 53d North Carolina, (Rebel,) 29: before Washington, 12th July; admitted hospital, Washington, 14th; died, 28th July, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

2487. A section of cranium fractured by a buckshot, which entered on the right side of the nose and passed
c. 4. out below the left ear. (The specimen shows but a portion of the track of the missile.) The petrous portion of the left temporal is fractured and removed, the left great ala of the sphenoid is fractured at its root, and there is caries and necrosis of the left ramus of the inferior maxilla with removal of the articular cartilage of the condyle and the coronoid process. The entire external surface of the left parietal, the left side of the frontal and occipital, and the left malar show traces of disease.

Sergeant L. A. G., "B," South Carolina Rifles, (Rebel,) 18: Spottsylvania, 12th May; admitted hospital, Washington, 27th May; died, 8th June, 1864.

Contributed by Surgeon J. C. McKee, U. S. Army.

See class **II.** A. a. b.

For other illustrations see 4435, **XXVII.** B. b. d. 33.

A′. A List of Specimens Illustrating Fracture of the Cranial Bones by Contre-coup After Gunshot.

2871. Shell wound of cranium at the intersection of the coronal and sagittal sutures. The orbital plate and lesser
I. A. b. a. 3. wing of the sphenoid fractured by contre-coup.

3254. Left temporal bone fractured at the meatus auditorius externus by a conoidal ball. The occipital is frac-
I. A. b. d. 16. tured by contre-coup.

830. Cranium perforated transversely by a musket ball. The right orbital plate of the frontal, the squamous
I. A. c. a. 4. portion of the right temporal, and the body of the right superior maxilla are fractured as if by contre-coup.

1318. Cranium traversed by a musket ball from the posterior border of the left parietal to the squamous portion of
I. A. c. a. 9. the left temporal. The right orbital plate of the frontal and the superior maxilla are fractured by contre-coup.

3251. Cranium perforated by a musket ball from the anterior inferior angle of the right parietal to the posterior
I. A. c. a. 11. fontanelle. Both superior maxillaries are fissured by contre-coup.

B. Injuries of Cranial Bones not caused by Gunshot.

A. Incised and Punctured Wounds.

a. Primarily fatal.
b. Operated upon by the removal of fragments.
c. Operated upon by trephining.
d. Secondary results without an operation.

a. Primarily Fatal.

1612. a. 1. The body of the sphenoid bone transfixed by a sword point from below upward and backward, inclining to the right, with the extremity impinging against the right of the posterior clinoid processes, both of which are broken off. There is a complete transverse fracture of the body of the sphenoid passing through the sella turcica and sphenoidal cells. A passage one line to the right would have avoided the clinoid processes. *See figure* 27.

Private J. H., Hospital Guards, Lovell General Hospital, Portsmouth Grove, Rhode Island, 25: while intoxicated rushed at the sergeant of the guard and fell upon the point of a sword which rested firmly against the sergeant's hip; the point entered the nostril and penetrated five inches. Died in thirty-one hours.

Contributed by Surgeon L. A. Edwards, U. S. Army.

See 4628, **XXVI.** A. 2, 60.

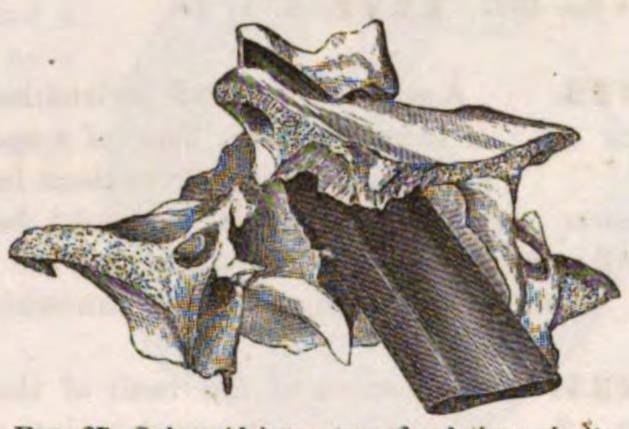

FIG. 27. Sphenoid bone transfixed through its body by a sword point from below. *Spec.* 1612.

971. a. 2. A skull fractured by sabre cuts in the occipital and parietal bones. The most extensive cut extends from the anterior portion of the middle third of the sagittal suture downward through the left parietal bone, crossing the lambdoidal suture, and extending to a point one inch above and to the right of the occipital protuberance, where a fissure extends forward nearly to the mastoid process. The second cut passes through the left parietal protuberance and extends from the frontal suture downward and backward four inches. The left parietal is much broken by these two cuts, and there is considerable loss of substance. A third cut is about two inches in length in the posterior internal angle of the right parietal, involving only the outer table. A fourth cut has carried away the left malar bone, with a small portion of the great wing of the sphenoid and the point of the zygoma.

An Araucanian Indian, possibly not full-blood, killed in action by Chilian troops.

Contributed by the Smithsonian Institution, through Professor S. F. Baird.

970. a. 3. A skull exhibiting nine sabre cuts of the bones of the head and face. The first and deepest cut is four inches in length, and passes nearly at a right angle across the coronal suture at the middle of the anterior border of the left parietal bone. Fissures from the extremities of the cut extend anteriorly to the superciliary ridge, and posteriorly to the root of the zygoma. The second cut, involving mainly only the external table, extends from one-half an inch external to the right temporal ridge horizontally inward to near the middle of the frontal bone. From the outer end a fissure extends backward to the right parietal protuberance, and from the inner end to the coronal suture. The third cut is three inches in length, and extends across the sagittal suture in its middle third. The fourth and fifth cuts, each about one and a half inches in length, are in the posterior part of the right parietal. The sixth cut, of the same length, is in the left parietal just above the junction of the sagittal and lambdoidal sutures. Neither of the last three passes through both tables. The seventh cut sliced off about one and a fourth square inches from the outer table of the inferior posterior angle of the left parietal. The eighth is a comparatively slight cut at the junction of the mastoid and squamous portions of the right temporal. The ninth cut passes transversely through the root of the nose and the orbital process of the right malar, severing the nasal and lachrymal bones, the frontal and orbital processes of the right superior maxillary, the orbital processes of the malar, the right zygoma and a portion of the inferior turbinated bones. The cranial wounds are remarkable for the cleanness with which they are cut. *See figure* 28.

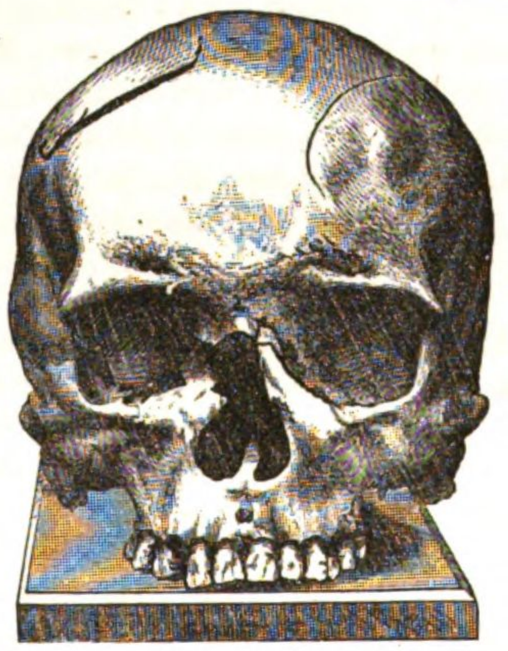

FIG. 28. A cranium exhibiting nine sabre cuts. *Spec.* 970.

An Araucanian Indian, killed in action by Chilian troops.

Contributed by the Smithsonian Institution, through Professor S. F. Baird.

See class **II.** B. A. a.

b. Operated upon by the Removal of Fragments.

2179. The vault of the cranium perforated by a bayonet just behind the left
b. 1. parietal protuberance, from which death followed in twenty-six days An ovoid portion of bone one by one-half inch has been removed; the edges of the wound are somewhat rounded, and the bony substance is porous, especially upon the inner table. A slight fissure exists in the outer table. *See figure* 29.

Private T. G., "B," 90th Ohio: wounded by a sentinel, and admitted hospital, Nashville, Tenn., 27th November; fragments of dead bone removed, 8th December; died, 23d December, 1863.

Contributed by Assistant Surgeon C. J. Kipp, U. S. Vols.

See 4627, **XXVI.** A. 1, 15.

FIG. 29. The vault of the cranium after perforation by a bayonet. *Spec.* 2179.

712. A segment of the left parietal bone, showing a fracture, with the removal
b. 2. of bone, from the blow of a spade. The fracture extends downward from the sagittal suture three inches, and is one inch in width at the lower part. Nearly all the fractured bone has been removed, but a few depressed fragments of the inner table are adherent. The borders of the wound are necrosed.

Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

235. A section of the vault of the cranium, showing a fracture by sabre cut of the right parietal bone at the
b. 3. tuberosity. A triangular piece of bone, amounting to a square inch, has been removed. The skull is very thin, and is fissured in three directions. The bone immediately around the injury is spongy, and gives evidence that death was not primary.

Contributed by Assistant Surgeon Warren Webster, U. S. Army.

d. Secondary Results without an Operation.

974. Two small sequestra from one of the cranial bones, as if after a sabre wound. The smaller, which is one inch in
d. 1. length, consists mainly of diploe. The other, which measures three-fourths of an inch by one and a half inches, is blackened and perforated in the centre.

Contributor and history unknown.

3684. A portion of the frontal bone, showing a sabre cut one inch in length just
d. 2. internal to the left frontal protuberance, the external table only being injured. Two discolored spots appear upon the bone, possibly due to incipient syphilitic caries. *See figure* 30.

Private J. H., 27th Company, Second Battalion, Veteran Reserve Corps, 22: wounded by a sabre while a patient in Ricord General Hospital, Washington, 23d January; died from abscess of the brain, 17th February, 1865.

Contributed by Acting Assistant Surgeon N. S. Stickney.

See 3685, **I.** C. B. b. 11; 3571, **I.** C. B. b. 12.

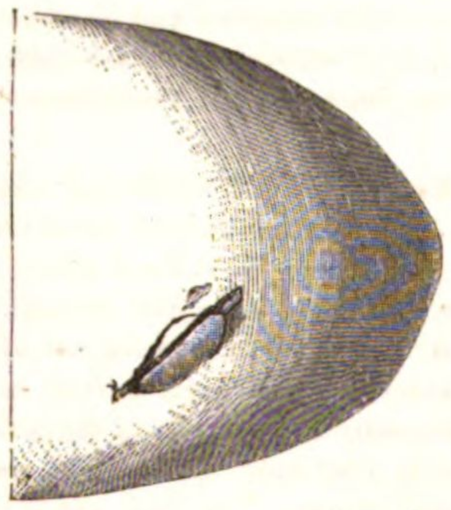

FIG. 30. A sabre cut just internal to the left frontal protuberance. *Spec.* 3684.

4206. A wet preparation of a segment of the right parietal bone, fractured by a
d. 3. sabre cut near the parietal eminence Death occurred on the thirty-seventh day. The cut in the outer table measures two and a half inches from above downward, and is a simple incision, the edges of which are necrosed and suppurating in the centre. A fragment of the inner table, one and a half inches long and one-fourth inch wide, is depressed two lines It is completely covered and the angles of the depression are filled up by a lenticular deposit of lymph two inches in diameter and one-fourth inch in thickness, firmly adherent to the dura mater, which is perforated by two small openings one line in diameter. Around these openings, which are due to ulceration, the dura mater is thickened and soft, with slight discoloration of the inner surface over a space one inch in diameter.

Private J. M. D., "M," 1st New Jersey Cavalry: near Burksville, Va., 6th April; admitted hospital, Baltimore, 11th May; died, 12th May, 1865.

Contributed by Acting Assistant Surgeon J. H. Butler.

1672. A section of the posterior portion of the cranium, with both parietal
d. 4. bones fractured by a sabre cut, six inches in length, just in front of the lambdoidal suture. The external table is raised, forming an osseous flap. The internal table is much splintered, portions having been removed. Other portions are depressed and adherent by the deposit of new bone to the edges of the fracture. *See figure* 31.

Private J. T. B., "F," 7th Michigan Cavalry: captured at Gettysburg, and cut down by a rebel Lieutenant, because, wearied, he fell behind on the march, 3d July; admitted Cavalry Corps Hospital, 4th July; died forty-two days after injury, 15th August, 1863.

Contributed by Surgeon W. H. Rulison, 9th New York Cavalry.

See 4627, **XXVI.** A. 1, 8.

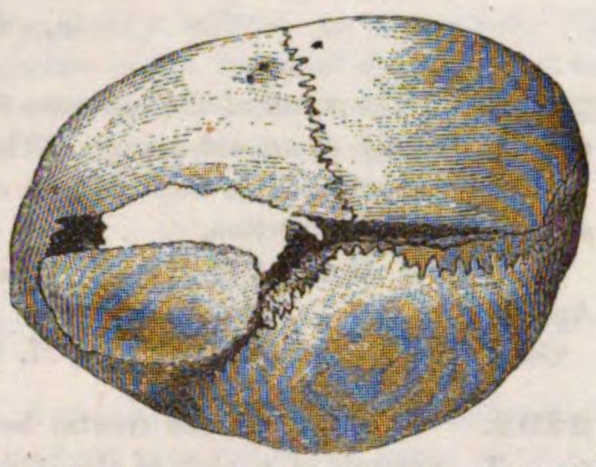

FIG. 31. Sabre cut of both parietals. *Spec.* 1672.

3307. The vault of the cranium, exhibiting four sabre cuts of the left, and a
d. 5. depressed fracture of each parietal bone. None of the sabre cuts have directly penetrated the inner table, but it is extensively fissured and partly driven inward. The depressed fractures are directly opposite each other, as though the head had been violently compressed laterally. Traces of inflammatory action, with slight osseous exudation, appear upon the inner table. The superior portions of the parietals are discolored as if ecchymosed. *See figure* 32.

Private R. H., "C," 7th U. S. Colored Artillery: Fort Pillow, Tenn., 12th April; died, Mound City, Ill., 21st April, 1864.

Contributed by Surgeon H. Wardner, U. S. Vols.

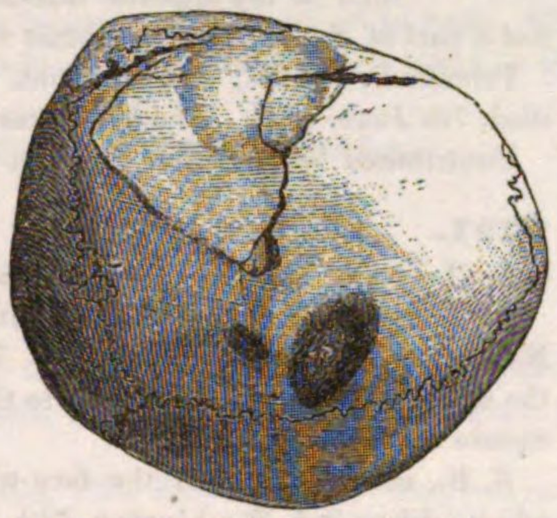

FIG. 32. Four sabre cuts on the vault of the cranium and a depressed fracture of each parietal. *Spec.* 3307.

B. Contusions and Partial Fractures.

a. Primarily fatal.
b. Operated upon.
c. Secondarily fatal without an operation.
d. Sequestra removed.

a. PRIMARILY FATAL.

2970. A fragment of the frontal bone showing a tribranched fracture, caused by a fall from a horse. Externally one
a. 1. line of fracture passes from the centre of the superior border of the bone downward and outward through the right frontal eminence. From the upper third of this fissure a second fissure passes nearly at right angles downward through the left frontal eminence. This last fissure involves the external table only. The inner table is fissured to correspond with the first line of fracture, and there is also a short fissure branching upward. The inner table opposite each frontal eminence is reticulated, and in the centre of the perforated plate of the left side there is a small nodule of bone as large as a grain of wheat.

Sergeant A. N., "B," 13th New York Cavalry: injured in Washington, 10th August; treated in the regimental hospital; died, 14th August, 1865.

Contributed by Surgeon J. M. Homminston, 3d New York Provisional Cavalry.

b. OPERATED UPON.

2210. Four fragments of bone, removed by operation from the right side of the frontal bone fractured by a blow
b. 1. from a bottle. The fragments comprise about one-half square inch of the inner table.

Private ——, 149th New York: injured, Stevenson, Ala., 24th January, 1864; operated upon by Surgeon G. A. Kimball, 149th New York.

Contributed by the operator.

2876. The vertex of the cranium fractured in the left parietal region; probably the result of a blow from some blunt
b. 2. weapon. There is a semi-circular fissure of the external table just in front of the protuberance, and stellate fissuring with slight depression of the inner table, including a surface one inch in diameter. From this point a fissure involving both tables extends to the centre of the left branch of the lambdoidal suture. There are no traces of attempt at repair. The result of the so-called Pacchionian bodies in producing absorption of bone, with elevation of the outer table, is well marked in this specimen.

Private D. H., U. S. Marine Corps: admitted hospital, with frostbite of feet, Vicksburg, Miss., 24th February: the injury of the head was not diagnosed; died, 1st March, 1866.

Contributed by Acting Assistant Surgeon G. F. Rockwell.

See class **XXIII.** B. D.

c. SECONDARILY FATAL WITHOUT AN OPERATION.

2230. c. 1. The vault of the cranium from an epileptic subject, showing necrosis in the right frontal eminence, the evident result of an old injury. The necrosed fragment of the size of a small bean is not detached, but the line of demarcation is well marked on both tables. Traces of osteitis, really incipient caries, are apparent for one inch around the central portion.

Private W. McD., "K," 3d New Jersey, 24: admitted hospital, with epilepsy, Washington, 2d February; died, 15th April, 1864.

Contributed by Medical Cadet C. M. Hunt, U. S. Army.

2492. c. 2. A section of the frontal bone, showing a fracture with slight depression between the frontal eminences, and necrosis of a plate of the internal table measuring one and a fourth inches transversely, and three-fourths of an inch in the opposite direction, including a part of the posterior wall of both frontal sinuses. The specimen shows but a part of the injury of the outer table. Cause unknown.

Private F. B., "F," 8th Vermont, 41: admitted hospital, with the usual signs of typhoid fever, Washington, 26th May; died, 7th June, 1864. The brain was softened and pus found in the frontal sinuses. There was no disease of Peyer's glands.

Contributed by Assistant Surgeon J. C. McKee, U. S. Army.

2321. c. 3. A segment of the vertex of the cranium with necrosis, following fracture, of the anterior superior angle of the right parietal bone. A necrosed fragment of the outer table measuring one-fourth by three-fourths of an inch remains *in situ*, the surrounding bone being cribriform and partially absorbed for a space of one inch in diameter. No fracture is apparent externally. There is stellate fracture of the inner table with extended necrosis and osteoporosis of the surrounding bone, extending to the frontal bone along the groove for the longitudinal sinus and involving nearly four square inches of surface.

E. B., colored: shot in the face with a pistol ball and struck on the head with an axe; remained three weeks in jail; admitted hospital, Washington, 18th February; died, 19th February, 1866.

Contributed by Dr. S. S. Bond.

See 2369, **I.** C. B. b. 18; 2328, **I.** C. B. b. 19; 2319, **II.** A. A. b. 6.

C. Fractures with Depression.

a. Primarily fatal.
b. Operated upon by the removal of fragments.
c. Operated upon by trephining.
d. Secondarily fatal without an operation.

a. PRIMARILY FATAL.

972. a. 1. A skull fractured with depression in the right parietal bone, just external to the sagittal suture, by a cast of the bolas, a South American weapon, consisting of a cord with a heavy ball of metal attached to each end, which is hurled. The fractured segment is an ovoid of an inch by one and a half, with a depression of one-sixteenth of an inch; about half of the broken bone is wanting. The inner table is not splintered more than the outer one.

A Pampa Indian, from the northeast region of Patagonia.

Contributed by the Smithsonian Institution, through Professor S. F. Baird.

2862. a. 2. The anterior half of a skull, showing a fracture of the right temporal region by a blow from a board, which produced instant death. The line of fracture crosses the tip of the great wing of the sphenoid and continues as a fissure, bifurcating an inch from its termination, directly upward and inward nearly to the median line of the frontal bone. The right orbital plate of the frontal is traversed in its long diameter by a fissure, from the edges of which small fragments have been removed. There is no depression.

Private E. C. M., "D," 28th Alabama, (Rebel): killed by a fellow-prisoner, Rock Island, Ill., 14th August, 1864.

Contributed by Surgeon W. Watson, U. S. Vols.

130. a. 3. The upper half of the cranium, in which a fracture six and a half inches in length extends from the inferior edge of the right parietal through the protuberance, crosses the sagittal suture at right angles, and curves forward into the left parietal bone. The anterior portion of the left parietal is slightly depressed.

Unknown: violently thrown from a railroad car in motion, and died in five days.

Contributed by Acting Assistant Surgeon Wm. Draine.

4351. a. 4. A section of the base of the cranium fractured, with slight depression of the internal table, at the base of the occipital, through the posterior condyloid foramen, to the mastoid process on each side. A plate of bone including both tables between the curved lines on the left side is depressed one line at the free edge. Death in this case was caused by the separation of the medulla oblongata from the pons varolii.

Private J. C., "K," 2d U. S. Infantry, 30: killed with an unknown weapon, at Fort Columbus, New York Harbor, 21st January, 1865.

Contributed by Assistant Surgeon P. S. Conner, U. S. Army.

3019. A cranium extensively fractured on the right side and base by falling from a railroad car in motion. The
a. 5. anterior inferior angle of the right parietal and part of the squamous portion of the temporal are fractured and driven in. One line of fracture passes through the meatus auditorius to the foramen lacerum medium, and another through the body of the sphenoid. All the sutures of the right side and base of the skull are more or less opened.

Unknown: dead when picked up, Baltimore, 7th July, 1865.

Contributed by Brevet Major D. C. Peters, Assistant Surgeon, U. S. Army.

b. Operated upon by the Removal of Fragments.

1457. A section of cranium fractured by a blow from the trigger of a musket at the middle of the lower border of the
b. 1. left parietal and adjoining portion of the temporal bones. Fragments have been removed from a space measuring two inches backward and downward, and one and one-fourth in width. Two fragments of the outer and one of the inner table remain attached; the latter and one of the former have their free edges depressed one-fourth of an inch. The edges of the fracture are somewhat beveled at the expense of the inner table The fractured fragments were found in the substance of the brain at the autopsy, and there was hernia cerebri.

Private M. B., 9th Massachusetts: admitted hospital, comatose, Baltimore, 5th July, 1863; died the same day.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

c. Operated upon by Trephining.

1452. A disc of bone, one inch in diameter and including the entire thickness of the cranium, removed by the trephine
c. 1. from the parietal eminence. A small sharp-edged fragment of the inner table, depressed one line by the injury, is attached to the disc.

Private J. R., "H," 2d Michigan, 41: received four wounds of the head from stones, 17th July: admitted hospital, and trephined by Brevet Colonel D. W. Bliss, Surgeon, U. S. Vols., Washington, 18th July; transferred to Detroit, Mich., 24th August, 1865.

Contributed by the operator.

See 4628, **XXVI.** A. 2, 87.

3453. A section of cranium trephined at the anterior inferior angle of the right parietal bone for fracture with depression
c. 2. caused by a kick from a horse. One square inch of bone has been removed.

Unknown, Signal Corps: injured, February, 1862; trephined, six hours afterward, by Assistant Surgeon J. S. Billings, U. S. Army; died, from meningitis, on the sixth day.

Contributed by the operator.

2081. A disc and fragment of bone, removed by trephining from the right parietal eminence for the relief of fracture
c. 3. with depression caused by a blow from an axe. The fragment includes the entire thickness of the bone, and measures one and one-fourth inches by one inch.

From a Negro operated upon by Assistant Surgeon J. W. S. Gouley, U. S. Army.

2673. A section of cranium trephined for fracture with depression of the right parietal and temporal bones caused by a
c. 4. blow. Fragments of bone have been removed from a space four inches in length by two in width, the edges of the opening being rounded and in process of repair. A fissure of both tables extends to the centre of the right half of the coronal suture. The inner surface of the parietal is eroded, the vitreous table presenting a worm-eaten appearance.

Private C. H., "G," 61st Ohio, 37: found in the street, and admitted hospital and trephined, Alexandria, 27th September; died, 28th November, 1863.

Contributed by Surgeon E. Bentley, U. S. Vols.

d. Secondarily Fatal without an Operation.

419. A section of the skull showing fracture of the right side of the frontal bone and walls of the right orbit, with
d. 1. well-marked reparative action externally. The injury was caused by a blow just over the inner angle of the right eye, comminuting the anterior wall of the frontal sinus and completely separating the right orbital plate of the frontal from the body of the same bone. A fissure passes from just above the right external angular process of the frontal upward and inward to the median line. Other fissures traverse the orbital plate and malar process of the right superior maxilla. All these fractures are solidified by osseous deposit. A fracture of the free extremities of both nasal bones is also united with very little displacement. Internally the walls of the anterior and middle fossæ of the base of the cranium on the right side are thinly crusted with a white chalky deposit, and at some points they are cribriform and carious.

S. R., Negro, 35: admitted hospital, with wound over right eye, which soon healed, Washington, 30th October, 1865; died, of meningitis and abscess of right lung, 25th February, 1866.

Contributed by Dr. S. S. Bond.

See 498, **I.** C. B. b. 17.

D. Fractures by Contre-coup. { a. Primarily fatal. b. Seconday results.

a. Primarily Fatal.

3440. A segment of cranium showing a fracture of the base through the bodies of the sphenoid and ethnoid, probably
a. 1. by a fall. The bodies of the sphenoid and ethnoid are comminuted. There is a short fissure passing into the left orbital plate of the frontal, and another which extends to the left frontal eminence. The sphenoid bone is entirely separated.

Private R. S. C., Bryson's Pennsylvania Artillery, 22: admitted hospital, Baltimore, 30th September; died, 5th October, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

C. Injuries of the Soft Parts of the Cranium.

A. Of the Scalp. { a. Gunshot. b. Incised and punctured. c. Lacerated.

a. Gunshot.

1302. A wet preparation of a segment of the scalp from the right parietal region, perforated by a musket ball which
a. 1. fractured the cranium and caused death on the eleventh day. The opening made by the ball has been enlarged by two incisions and by the sloughing of the contused edges.

Sergeant J. F., "K," 14th Maine, 34: Port Hudson, La., 27th May; admitted hospital, New Orleans, 29th May; died, 7th June, 1863.

Contributed by Assistant Surgeon P. S. Conner, U. S. Army.

See 1301, **I.** A. B. b. 42.

b. Incised and Punctured.

For a probable illustration, see 4385, **I.** D. B. 1.

B. Of the Brain and Membranes. { a. Primarily fatal. b. Secondary results.

b. Secondary Results.

967. A wet preparation of a portion of the dura mater with a fragment of cranium firmly adherent. The fragment of
b. 1. bone includes both tables and is triangular, each side measuring three-fourths of an inch. It has probably been contused by gunshot. The adjoining portion of the membrane is thickened by interstitial deposit and is of a yellowish color.

Contributor and history unknown.

See class **I.** A. A. c.

2223. A wet preparation of a portion of the dura mater from beneath the right parietal, thickened and softened by
b. 2. interstitial deposit, with effusion of lymph and pus on its inner surface, after a depressed fracture by a musket ball. Externally a few flakes of false membrane appear, the diseased surface being one inch in diameter. Internally suppuration has occurred on a surface three inches in diameter.

Private G. V., "C," 86th New York: probably Chancellorsville, 3d May; admitted hospital, Washington, 7th; had no head symptoms until after exposure to hot sun, 16th; died, 22d May, 1863.

Contributed by Acting Assistant Surgeon Bates.

See 1257, **I.** A. A. c. 21.

614. A wet preparation of the dura mater from the vertex of the cranium, thickened, softened, and having a deposit of
b. 3. pus and lymph upon its inner surface, one inch to the right of the longitudinal sinus and extending over a space two inches in diameter. In this case there was contusion of the cranium by a musket ball, resulting in death from tetanus on the twenty-second day. The external surface of the membrane is unchanged, and the deposit of lymph internally is thin and not firmly adherent.

Private C. K., "K," 130th Pennsylvania: Fredericksburg, 13th December; admitted hospital, Baltimore, 20th December, 1862; died, 4th January, 1863.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

See 613, **I.** A. A. c. 3.

1923. A segment of the dura mater from the vertex of the cranium, extensively diseased, the result of a gunshot injury
b. 4. of the left parietal bone. The internal surface of the membrane is of a dark greenish color for five inches antero-posteriorly and three inches in breadth, including the walls of the longitudinal sinus. This is due to a deposit of false membrane, thin, fragile and easily separable at the edges, but becoming thicker, firmer and more closely adherent in the centre. On either side of the sinus appear fringe-like tufts, or nipple-like processes of the dura mater, in several of which bone has been produced. The body of the membrane is thick and soft, and externally there is a distinct dark line of demarcation around the diseased portion, corresponding with the edge of the necrosed bone which lay above it. Suppuration has occurred on both surfaces, the lining membrane of the longitudinal sinus has lost its polish, and a few small yellowish coagula remain firmly adherent to its surface.

Private W. McP., "A," 101st Ohio: Chickamauga, 20th September; admitted hospital, Nashville, 24th September; died, 14th October, 1863.

Contributed by Assistant Surgeon C. J. Kipp, U. S. Vols.

See 1922, **I.** A. A. c. 14.

966. A wet preparation of a section of the dura mater from the left parietal bone, perforated as the result of gunshot
b. 5. injury. The opening is oval, measuring three-fourths by one-half an inch. The edges are thickened and softened, with deposit of lymph on the internal surface. On the external surface, one inch from the opening, there is a partial ring of dark spots caused by coagulated blood.

Private P. R., "I," 10th New York: Fredericksburg, 13th December; admitted hospital, Washington, 19th; trephined the same day; died, 22d December, 1862.

Contributed by Surgeon J. C. Dorr, U. S. Vols.

See 528, **I.** A. B. c. 22; 965, **I.** C B. b. 21.

1014. Dura mater from the vertex of the cranium, perforated at the side of the longitudinal sinus, apparently as a
b. 6. result of gunshot injury. The opening measures one by one and one-half inches; its edges are thickened with a deposit of lymph and brain substance on the inner surface. In this case there was probably hernia cerebri.

Private J. McC., "B," 24th Texas Cavalry, (Rebel,) 23: Arkansas Post, 10th January; admitted hospital, St. Louis, 22d January; died, 8th February, 1863.

Contributed by Surgeon John T. Hodgen, U. S. Vols.

See 1013, **I.** A. B. b. 46.

514. A wet preparation of the encephalon, showing perforation of the dura mater and abscess in the upper part of the
b. 7. anterior lobe of the left half of the cerebrum, extending to the median line, caused by a fragment of shell. The corpus callosum and fornix are destroyed, and both lateral ventricles are freely opened. The opening in the dura mater measures one-half by one inch.

Contributed by Assistant Surgeon J. W. Williams, U. S. Army.

957. A wet preparation of the encephalon with engorgement of the blood vessels, and coagula of blood at the base
b. 8. of the cerebrum. At the posterior notch of the cerebellum a thin layer of coagula is seen in the left fissure of Sylvius, the result of a gunshot injury.

Contributed by Assistant Surgeon W. Moss, U. S. Vols.

See 952, **I.** A. B. a. 9; 953, **XXII.** A. B. a. 1.

1059. A wet preparation of a portion of the cerebrum, with a small abscess in the upper part of the anterior lobe of the
b. 9. right hemisphere communicating with the lateral ventricle, probably the result of contusion of the cranium by a musket ball. On the external surface of the brain, one-half inch to the right of the longitudinal fissure, there is a dark spot with disorganization of the brain substance, and the surrounding part of the surface of the brain for three inches in diameter is discolored and shows traces of suppurative action. The cavity of the abscess will contain about half a fluid ounce.

Contributor and history unknown.

2219. A wet preparation of a part of the cerebrum, with a cavity in the posterior and external portion of the right
b. 10. lobe caused by gunshot injury. The cavity communicates with the lateral ventricle, and is the size of an English walnut. A small flattened hernia cerebri protrudes through an opening of the dura mater one-half inch in diameter.

Contributed by Acting Assistant Surgeon Joseph Leidy.

3685. A wet preparation of the lower part of the brain, the upper portion of which has been removed by a section
b. 11. downward and backward, and is shown in specimen 3571, **I.** C. B. b. 12. There is a large abscess in the left lobe of the cerebrum, resulting from a sabre wound of the head, which has opened into the left lateral ventricle, whence the pus has found its way into the other ventricles; the septum lucidum, velum interpositum, fornix and commissures of the thalamus having been broken down and partially removed. The cavity of the abscess contains two fluid ounces. The thalami optici and corpora striata appear normal. The cerebral substance of the walls of the abscess is softened and disintegrating.

Private J. H., 27th Company, Second Battalion, Veteran Reserve Corps, 22: wounded by the guard, Washington, 23d January; died, 17th February, 1865.

Contributed by Acting Assistant Surgeon A. L. Stickney.

See 3684, **I.** B. A. d. 2; 3571, **I.** C. B. b. 12.

3571. The upper and posterior portion of an abscess of the left lobe of the cerebrum, extending downward nearly to the
b. 12. tentorium, which is slightly thickened and discolored. The result of a sabre wound.

Private J. H., 27th Company, 2d Battalion, Veteran Reserve Corps, 22: wounded by the guard, Washington, 23d January; died, 17th February, 1865.

Contributed by Acting Assistant Surgeon A. L. Stickney.

See 3684, **I.** B. A. d. 2; 3685, **I.** C. B. b. 11.

505. A wet preparation of a portion of the cerebrum with a partially organized coagulum in the substance of the
b. 13. posterior lobe of the left hemisphere and in the cavity of the left ventricle. The clot is not recent, and the brain substance in the vicinity is firmly contracted around it. It is of a dark brownish-yellow color and spongy in texture, and measures one inch in diameter by one-fourth of an inch in thickness. On the surface of the brain there is a more recent clot, black in color and partially disorganized, measuring nearly the same as the first.

—— K., company and regiment unknown: followed a fall on the occipital bone below the protuberance.

Contributed by Acting Assistant Surgeon C. G. Page.

1725. A wet preparation of a portion of the cerebrum, showing an abscess in the centre of the right hemisphere
b. 14. communicating with the lateral ventricle, and externally with an opening in the dura mater, through which a hernia cerebri has taken place. The result of fracture with depression of the right parietal bone from gunshot. Patient lived five months. Three small fragments of the ball are impacted in the edge of the opening of the dura mater. The cavity of the abscess contains about two fluid ounces, and is lined by a pyogenic membrane having a filamentous surface.

Corporal C. C., "G," 123d New York, 24: Chancellorsville, 3d May; admitted hospital, Alexandria, 13th June; died, 2d October, 1863.

Contributed by Acting Assistant Surgeon T. H. Stillwell.

See 1724, **I.** A. B. b. 28.

2166. The left half of the brain, perforated apparently by a musket ball, which has traversed the anterior lobe of the
b. 15. cerebrum from side to side opening the lateral ventricle.

Contributor and history unknown.

3221. A wet preparation of the brain and part of the dura mater five days after perforation by gunshot. A pistol ball
b. 16. entered the left parietal near the posterior inferior angle, and passing transversely downward and forward perforated both hemispheres and lodged under the pia mater of the right side. The specimen shows extravasation of blood within the arachnoid. Pus was discharged from the wound of entrance and was found on the right side within the dura mater.

J. A., (quadroon,) 21: Alexandria, 25th December; died, 30th December, 1865.

Contributed by Surgeon E. Bentley, U. S. Vols.

See 3220, **I.** A. B. d. 1.

498. A wet preparation of a portion of the cerebrum, exhibiting a softened condition of the anterior external portion of
b. 17. the right hemisphere, following a clot induced by a fracture of the frontal bone four months before death.

S. R., Negro, 35: admitted hospital, Washington, 30th October, 1865; died, from meningitis and abscess of right lung, 25th February, 1866.

Contributed by Dr. S. S. Bond.

See 419, **I.** B. C. d. 1.

2369. A wet preparation of a portion of the right cerebral hemisphere, exhibiting an abscess the size of a pigeon's
b. 18. egg, situated under an incised wound of the right parietal bone inflicted three weeks previously. The abscess was filled with pus and broken-down brain tissue, and the covering membranes were thickened and adherent, rupturing on removal. The same patient received a gunshot wound of the orbit.

E. B., freedman, 30: believed to have been wounded with an axe three weeks previously; died, Washington, 17th February, 1866.

Contributed by Dr. S S. Bond.

See 2321, **I.** B. B. c. 3; 2328, **I.** C. B. b. 19; 2319, **II.** A. A. b. 6.

2328. A wet preparation of a portion of thickened dura mater, showing an attached coagulum of blood covering one
b. 19. and a half inches square, after an incised wound of the right parietal bone made three weeks previously. An abscess the size of a pigeon's egg was situated in the brain beneath the specimen. A gunshot wound of the orbit was suffered at the same time.

E. B., freedman, 30: believed to have been wounded with an axe three weeks previously; died, Washington, 17th February, 1866.

Contributed by Dr. S. S. Bond.

See 2321, **I.** B. B. c. 3; 2369, **I.** C. B. b. 18; 2319, **III.** A. A. b. 6.

3725. A wet preparation of the cerebrum, in the left hemisphere of which a conoidal ball that entered through the
b. 20. occipital bone remained lodged more than a month before death. Particles of bone were found in the abscess along with the missile.

Sergeant J. L., "I," 153d New York: admitted hospital, Baltimore, 26th October; died, 24th November, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles.

See 3729, **I.** A. B. b. 51; 3718, **VII.** A. B. b. 29.

965. A wet preparation of the left cerebral hemisphere, showing an irregular abscess the size of a walnut following
b. 21. gunshot fracture of the parietal.

Private P. R., "I," 10th New York: Fredericksburg, 13th December; admitted hospital, Washington, 19th; trephined the same day; died, 22d December, 1862.

Contributed by Surgeon J. C. Dorr, U. S. Vols.

See 528, **I.** A. B. c. 22; 966, **I.** C. B. b. 5.

For other illustrations, see 2619, **I.** A. A. c. 28; 4568, **XXVII.** B. B. d. 8.

D. Diseases of the Cranium.

- **A.** Of the Scalp.
- **B.** Of the Bones.
- **C.** Of the Brain and Membranes.
- **D.** Of the Auditory Apparatus.

B. Of the Bones.

4385. A cranium, probably of mixed Mexican and Indian blood, exhibiting on its vault a discolored area, light bluish-
B. 1. gray, dotted with black points, six inches in length and varying from two to four in breadth. This surface is somewhat cribriform, and what appears to have been slight periosteal disturbance may be traced. The internal surface is perfectly normal. This condition is probably the result of scalping without immediate death following.

The skull was picked up near the Lower Cimarron Springs, in the Comanche country, and contributed by Assistant Surgeon H. E. Brown, U. S. Army.

See class **I.** C. A. b.

For other illustrations, see 393, **I.** A. A. c. 2; 3091 **I.** A. B. b. 16.

C. Of the Brain and Membranes.

4088. The right cerebral hemisphere much softened and partially broken down, as if by an abscess after death from
C. 1. pyæmia following gunshot.

Private W. K., "I," 1st U. S. Cavalry: fractured right metatarsus, Dinwiddie C. H., Va, 31st March; admitted hospital, Washington, 4th April; leg amputated in the lowest third, 12th; died of pyæmia, 30th April, 1865.

Contributed by Acting Assistant Surgeon M. F. Price.

II. INJURIES AND DISEASES OF THE FACE,

Including the Organs of Vision, Smell and Taste.

- **A.** Gunshot Injuries.
  - **A.** Of the Bones of the Face, not including the Lower Jaw.
    - a. Fractures, primarily fatal.
    - b. Fractures without operations, secondarily fatal.
    - c. Results of operations.
    - d. Results of exfoliations.
    - e. Fractures and dislocations indirectly produced, which are not in themselves fatal.
  - **B.** Of the Lower Jaw.
    - a. Fractures, primarily fatal.
    - b. Fractures without operations, secondarily fatal.
    - c. Results of operations.
    - d. Results of exfoliations.
    - e. Dislocations.
    - f. Secondary results of injuries.
  - **C.** Of the Eye.
    - a. Results of operations.
    - b. Secondary results of injury.
  - **D.** Of the Tongue.
- **B.** Injuries not caused by Gunshot.
  - **A.** Of the Bones of the Face.
    - a. Fractures from sabre cuts.
    - b. Fractures from other causes.
    - c. Dislocations.
    - d. Results of operations.
    - e. Exfoliations.
  - **B.** Of the Lower Jaw.
    - a. Fractures from sabre cuts.
    - b. Fractures from other causes.
    - c. Dislocations.
    - d. Results of operations.
    - e. Exfoliations.
  - **C.** Of the Eye.
  - **D.** Of the Tongue.
- **C.** Diseases and their Results.
  - **A.** Of the Bones of the Face.
  - **B.** Of the Lower Jaw.
  - **C.** Of the Nose.
  - **D.** Of the Eye.
  - **E.** Of the Tongue.
  - **F.** Of the Teeth.

II. FACE.

A. Gunshot Injuries.

A. Of the Bones of the Face, not including the Lower Jaw.
- a. Fractures, primarily fatal.
- b. Fractures without operations, secondarily fatal.
- c. Results of operations.
- d. Results of exfoliations.
- e. Fractures and dislocations indirectly produced, which are not in themselves fatal.

a. Fractures, Primarily Fatal.

1168. a. 1. A skull fractured by a musket ball, which entered at the inner side of the left orbit and passed downward, carrying away the upper and inner walls of the left antrum, the left inferior turbinated bone, the posterior part of the hard palate, the extremity of the right pterygoid process, and a part of the right ramus and body of the inferior maxilla. The right antrum is opened postero-inferiorly, and nearly one inch of the alveolar process of the superior maxilla has been removed. The fracture of the lower jaw involves the anterior border of the ramus and one inch of the alveolar border of the body, the external plate being comminuted and removed for a little over one inch in each direction.

Unknown (Rebel): killed at Antietam, 17th September, 1862.

Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

For other illustrations, see 1166, **I.** A. c. a. 13.

b. Fractures without Operations, Secondarily Fatal.

1239. b. 1. The left superior maxilla and part of malar bone fractured by a musket ball, which carried away the upper part of the body and the orbital process. The teeth remain *in situ:* the zygomatic process of the malar is broken off at its root. The palate and alveolar processes are uninjured. The patient also suffered a gunshot fracture of the right humerus.

Private R. H., "F," 95th Pennsylvania: Chancellorsville, 3d May; admitted hospital, Washington, 8th; died, 24th May, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See 1238, **VI.** A. B. b. 10.

3902. b. 2. The inferior and left superior maxilla, fractured probably by gunshot. The inferior maxilla is fractured at the right ramus and angle, the coronoid process being separated and the canal for the inferior dental nerve laid open. The upper portions of the superior maxilla are wanting. The hard palate and alveolar process remain intact. A small fragment of the right superior maxilla, containing one incisor, is attached.

Private G. W. B., "G," 42d Virginia, (Rebel,) 25: Gettysburg, 3d July; common carotid ligated, three inches below the bifurcation, 9th; died, 13th July, 1863.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

See 3969, **XVIII. I.** A. B. b. 18.

2989. b. 3. A section of cranium, showing fracture of the facial bones by a musket ball which entered just behind the right external angular process of the frontal bone, and, passing forward and inward, destroyed the right eye, carried away the nasal and lachrymal and the orbital processes of the superior maxillary bones, and emerged at the inner angle of the left orbit. The orbital portions of the right malar and superior maxilla are wanting, and the greater part of the turbinated bones are comminuted and removed. The frontal sinuses and sphenoidal cells are freely opened, the right orbital plate of the frontal is fissured, and two fissures pass down into the body of the superior maxilla. The cranial cavity is not opened. The edges of the fractured bones show traces of attempt at repair. Death occurred from abscess in the right lobe of the cerebrum.

Private E. R., "F," 69th Indiana: Carrion Crow Bayou, Louisiana, 3d November; admitted hospital, New Orleans, 9th; died, 22d November, 1862.

Contributed by Assistant Surgeon P. S. Connor, U. S. Army.

See class **I.** A A. c.

1016. A section of cranium, with the bones of the face fractured and comminuted by a fragment of shell, which
b. 4. caused death on the fourteenth day. The nasal, lachrymal, body of the ethmoid and turbinated bones, with the upper parts of the bodies of both superior maxillaries and the vomer, have been carried away. Both malar bones are separated and dislocated backward, a fracture traverses the body of the sphenoid and the petrous portion of the left temporal bone, and a second fissure divides longitudinally the palatine process of the right superior maxillary. The fronal sinuses, which are very large, are freely exposed, and the cranial cavity is opened through the ethmoid, the opening measuring three-fourths by one-half inch.

Private W. V., "E," 1st Texas (Rebel): Arkansas Post, 10th January; admitted hospital, St. Louis, 22d; died, 23d January, 1863.

Contributed by Surgeon John T. Hodgen, U. S. Vols.

See class **I.** A. A. C.

2899. A skull showing extensive fracture and removal of the bones of the face, probably caused by a fragment of shell
b. 5. which entered below and external to the left eye and passed out below the right orbit, from which death followed about the eighteenth day. The right malar, the bodies of both superior maxillaries, both lachrymal bones, the body of the ethmoid, with the turbinated bones, the left great ala of the sphenoid, and the left external angular process of the frontal with the orbital plate have been carried away. The left parietal is fissured from the anterior inferior angle to the parietal eminence. The left palate bone is fractured across, the sphenoidal cells are exposed, and the cranial cavity is freely opened. The edges of the fractured bones are slightly necrosed and show traces of an attempt at repair.

Private C. C., "H," 30th North Carolina, (Rebel,) 30: admitted hospital, Washington, 14th May; died, 27th May, 1864.

Contributed by Acting Assistant Surgeon J. E. Winants.

See class **I.** B. D.

2319. A portion of the cranial and facial bones, fractured probably by a pistol ball which entered at the internal and
b. 6. inferior angle of the right orbit and passed backward, outward, and downward, and merged through the pterygo-maxillary fossa. The external and inferior walls of the orbit are comminuted, and the antrum is freely opened. A fissure one inch in length traverses the frontal bone above and behind the external angular process.

E. B., colored: shot, and wounded with an axe on the cranium; detained in jail three weeks; admitted hospital, Washington, 18th February; died, 19th February, 1866.

Contributed by Dr. S. S. Bond.

See 2321, **I.** B. B. c. 3; 2369, **I.** C. B. b. 18; 2328, **I.** C. B. b. 19.

For other illustrations, see 2690, **I.** A. B. b. 70; **I.** 3257, **I.** A. B. d. 14; 2487, **I.** A. C. c. 4; 4628, **XXVI.** A. 2, 79.

C. Results of Operations.

627. A small fragment of the palatine bone, removed and contributed by Dr. W. H. Davis.
c. 1.

1690. A fragment of the alveolar process of the right superior maxilla, containing one canine and one bicuspid tooth,
c. 2. fractured by a musket ball and removed by operation.

Private W. T. M., "G," 15th Massachusetts: Gettysburg, 2d July; admitted hospital and operated upon, Baltimore, 10th; reported nearly well, 31st July, 1863.

Contributed by Surgeon C. W. Jones, U. S. Vols.

3374. A disc of bone removed by the trephine from the left superior maxilla, with a battered and flattened conoidal ball
c. 3. removed from the antrum.

Private J. K., "K," 102d Pennsylvania, 25: Wilderness, 5th May; admitted hospital, Washington, 11th; specimen removed, 23d May; discharged the service, 3d September, 1864.

Contributed by Assistant Surgeon George A. Mursick, U. S. Vols.

See class **XXVII.** B. B. d.

3994. A part of the alveolar process and body of left superior maxilla, fractured probably by gunshot. The teeth remain
c. 4. *in situ.*

Contributed by Assistant Surgeon Samuel Adams, U. S. Army.

1531. The alveolar process and a fragment of the body of the right superior maxilla, fractured by a musket ball and
c. 5. removed by operation. The fragment of body is one and three-fourths inches long by one-half inch in width, and includes the nasal process and canine fossa. All the teeth are *in situ*, the line of fracture having opened the top of the alveoli.

Private ——, 11th (?) Excelsior (New York Volunteers): wounded, and operated upon on the field by Assistant Surgeon J. Theodore Calhoun, U. S. Army, Gettysburg, 3d July, 1863.

85. A section of cranium fractured by a conoidal ball which entered the body of left malar bone and passed inward
c. 6. and backward, carrying away the lower and inner walls of the left orbit, the body of the ethmoid, and the greater part of the upper and inner wall of the right orbit, and lodged in the base of the anterior lobe of the right hemisphere of the cerebrum. Nine fragments, chiefly from the malar bone, and the ball separated into two parts, are attached The ball is sectional in construction, the posterior ring being separated and having a cylindrical pin attached fitting into a hole in the centre of the body.

Sergeant A. E., "B," 50th North Carolina, (Rebel,) 30: probably wounded, 25th March; admitted hospital, Washington, 30th March; died, 2d April, 1865.

Contributed by Acting Assistant Surgeon T. P. Arthur.

See classes **I.** A. B. b.; **XXVII.** B. B. d.

For other illustrations, see 4627, **XXVI.** A. 1, 32.

e. Fractures and Dislocations indirectly produced which are not in themselves Fatal.

For illustrations, see 2846, **I.** A. B. b. 67; 830, **I.** A. C. a. 4; 1318, **I.** A. C. a. 9; 3251, **I.** A. C. a. 11; 265, **XXV.** A. B. c. 3, *et seq.*; 2693, **XXV.** A. B. c. 7; 2694, **XXV.** A. B. c. 8.

B. Of the Lower Jaw.

- a. Fractures, primarily fatal.
- b. Fractures without operations, secondarily fatal.
- c. Results of operations.
- d. Results of exfoliations.
- e. Dislocations.
- f. Secondary results of injuries.

a. Fractures, Primarily Fatal.

739. A skull found on the battle-field of Second Bull Run. A fragment has been split off the angle of the lower jaw
a. 1. on the left side, and there is a short fissure on the inner surface passing forward to the root of the second molar.

Contributed by Surgeon Jerome B. Green.

3350. The right half of the inferior maxilla fractured by a musket ball, a small portion of which is attached. The
a. 2. missile entered the mouth, struck the alveolar ridge at the molar teeth, comminuting it and causing oblique fracture of the body of the bone from above downward and forward.

Private S. T., "E," 88th Pennsylvania: wounded at the Alexandria Prison, 26th July, 1864; died the same day, from hæmorrhage from rupture of the internal maxillary artery.

Contributed by Surgeon E. Bentley, U. S. Vols.

See class **XXVII.** B. B. d.

b. Fractures without Operations, Secondarily Fatal.

2702. Seven fragments of bone from the inferior maxilla, including the coronoid process and greater part of the ramus.
b. 1. Private H. C., "A," 1st New Jersey, 45: wounded by canister, Spottsylvania, 10th May; transferred to Philadelphia, 16th June, 1864. ?

Contributed by Assistant Surgeon J. T. Calhoun, U. S. Army.

(Information received at the last moment raises a doubt as to the classification of this specimen.)

122. The inferior maxilla fractured with comminution at the right side of its body, probably by a musket ball. One
b. 2. and a half inches of the body are broken; two teeth remain attached to the largest fragment.

Contributed by Surgeon J. H. Brinton, U. S. Vols.

3982. A wet preparation of the inferior maxilla, fractured and comminuted by a musket ball which entered at the root
b. 3. of the canine tooth on the right side and passed downward, slightly backward and outward, dividing the lingual artery. One inch of the bone is comminuted and partially removed, and there is a transverse fracture of its body a little to the right of the symphysis.

Private W. F., "H," 9th Virginia: Halltown, Va., 25th August; admitted hospital, Frederick, 27th August; died, from secondary hæmorrhage, 4th September, 1864.

Contributed by Acting Assistant Surgeon W. S. Adams.

1881. A wet preparation of the right half of the lower jaw, fractured and comminuted at the first molar tooth by a
b. 4. musket ball which passed downward, inward, and backward, beneath the root of the tongue, and contused the bodies of the sixth and seventh cervical vertebræ. The fragments remain in position, and there has been no attempt at repair. There were no indications of spinal injury during life. The ball was not discovered, and the subject declared he had spit it out.

Private G. A. A., "C," 20th New York, 35: probably Gettysburg, 3d July; died, of pyæmia, Philadelphia, 21st July, 1863.
Contributed by Acting Assistant Surgeon Joseph Leidy.
See 1867, **III.** A. B. a. 1.

1451. A wet preparation of the right side of the body of the inferior maxilla, fractured and comminuted by a musket
b. 5. ball at the angle. A fragment containing the molar teeth is driven inward, and other fragments remain *in situ*, the total amount of bone shattered being two inches. The ball lodged in the thyroid cartilage, causing death by suffocation on the nineteenth day.

Corporal T. A. W., "K," 111th New York, 22: Gettysburg, 3d July; admitted hospital, Baltimore, 15th; died, 22d July, 1863
Contributed by Acting Assistant Surgeon B. B. Miles.
See 1440, **XIX.** A. B. a. 1.

3535. The inferior maxilla, fractured by a musket ball from the alveolar ridge on the right side obliquely downward
b. 6. and to the left, crossing the symphysis. A large fragment of the alveolar border on the left side, containing five teeth, is detached and necrosed. No attempt at repair; the patient died of pyæmia.

Private J. B., "C," 20th New York: wounded, 12th May; admitted hospital, Washington, 20th; died, from pyæmia, 29th May, 1864.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.

2482. The right ramus of the inferior maxilla, fractured by a musket ball and removed by operation. The line of fracture
b. 7. is nearly perpendicular to the angle, and the external plate is fissured from the posterior border of the coronoid process to the angle. There is slight necrosis with deposit of new ossific matter near the fractured edge. The patient died of secondary hæmorrhage, for which the carotid was ligated.

Private J. R., "B," 63d New York: Wilderness, 5th May; admitted hospital, Washington, 13th; carotid ligated, 31st May; died, 1st June, 1864.
Contributed by Surgeon G. L. Pancoast, U. S. Vols.
See 2481, **XVIII. II.** A. B. b. 45.

1216. The right half of the inferior maxilla, with eight fragments from the palatine process of the superior maxilla,
b. 8. fractured by a musket ball. The body of the lower jaw is comminuted from the ramus to the right canine tooth, the alveolar ridge is partially removed, and the posterior molars are broken in their sockets. A fissure separates the coronoid process, and the inferior dental foramen is involved in the fracture. The patient died, of secondary hæmorrhage, on the ninth day.

Corporal R. J. F., "F," 60th New York, 22: Second Fredericksburg, 3d May; admitted hospital, Washington, 7th; died, 11th May, 1863.
Contributed by Surgeon O. A. Judson, U. S. Vols.

2731. The left ramus of the inferior maxilla, with two molar teeth attached, fractured, probably by gunshot, near the
b. 9. angle and slightly necrosed. One line of fracture crosses the ramus horizontally three-fourths of an inch above the angle; from the anterior third of this a second passes downward and forward to the lower border of the body of the bone, one and a half inches in front of the angle, opening in its course the inferior dental canal for one inch in length. A small fragment of bone remains attached to the root of one of the molar teeth.

Contributor and history unknown.

1635. Four large fragments of bone and a tooth from the right side of the inferior maxilla. The fragments include the
b. 10. whole of the ramus with the condyle and coronoid process and a part of the body.

Sergeant A. F., "D," 11th Indiana, 25: before Vicksburg, 24th June; admitted hospital-steamer "Crescent City," 7th July; common carotid ligated, 8th; died, 10th July, 1863.
Contributed by Surgeon J. T. Hodgen, U. S. Vols.
See 1636, **XVIII. II.** A. B. b. 19.

3206. The body of the lower jaw fractured, comminuted and necrosed. Fractures cross the bone at the symphysis and
b. 11. at the last molar tooth on each side, and other fissures connect them. A fragment of the external table of the right ramus, one and one-fourth inches in length, remains attached. Section has been made by a saw just behind the last molar tooth on the left side.

Received, without history, from City Point.

3542. The inferior maxilla fractured and comminuted by a musket ball. The alveolar ridge and the teeth are entirely
b. 12. removed; there is a horizontal fracture of the left ramus passing through the inferior dental foramen; on the right side there is a transverse fracture of the body of bone at the last molar, (by indirect action of the force,) and an oblique vertical fracture at the symphysis. The patient died from the effects of the wound of the tongue, causing hæmorrhage, for which the left common carotid was ligated.

Private G. T., "C," 82d Pennsylvania, 22: admitted hospital, Washington, 25th May; died, from exhaustion following secondary hæmorrhage, 3d June, 1864.

Contributed by Assistant Surgeon Wm. Thomson, U. S. Army.

See classes **II.** A. D.; **XVIII. II.** A. B. b.

632. A portion of the left half of the inferior maxilla, fractured obliquely at the ramus by a musket ball which carried away
b. 13. the condyle. The coronoid process is intact. The edge of the inferior dental foramen is involved in the fracture.

Private W. H. McL., "A," 108th New York: Antietam, 17th September; admitted hospital, Washington; secondary hæmorrhage, 1st October; recurred, 15th; died, 24th October, 1862.

Contributed by Surgeon O. A. Judson, U. S. Vols.

2440. Two fragments, being the right half of the inferior maxilla, fractured by a musket ball just behind the last
b. 14. molar. Besides the transverse fracture of the body of the bone, there is a horizontal fissure passing forward, just beneath the extremities of the alveoli, not disturbing the teeth. There is slight necrosis of the edges of the fracture, but no attempt at repair.

Private S. W. S., "B," 1st New York Dragoons, 23: Spottsylvania, 8th May; admitted hospital, Alexandria, 24th May; died, from secondary hæmorrhage from the jugular, 28th May, 1864.

Contributed by Acting Assistant Surgeon Jona. Cass.

For other illustrations, see 4628, **XXVI.** A. 2, 80; 4537, **XXVII.** B. B. d. 111.

c. Results of Operations.

413. Eight minute fragments of bone, removed by operation from the inferior maxilla.
c. 1. Private G. W. G., "H," 4th Vermont: admitted hospital, Baltimore, 25th July; discharged the service, for phthisis, 9th October, 1862.

Contributed by Surgeon L. Quick, U. S. Vols.

4288. Two small necrosed fragments from the symphysis of the inferior maxilla, fractured by a musket ball and removed
c. 2. by operation with successful result. The fragments are one inch long by one-fourth inch wide, and upon the largest new bone, forming ensheathing callus is well shown.

Private D. C. U., "B," 198 Pennsylvania: Southside Railroad, Va., 1st April; specimen removed, 14th April, 1865.

Contributed by Surgeon G. L. Pancoast, U. S. Vols.

1691. Three fragments of bone and a molar tooth, removed by operation from the body of the inferior maxilla fractured
c. 3. by a musket ball at the right side.

Private G. T. A., "E," 3d North Carolina (Rebel): Gettysburg, 2d July; admitted hospital and specimen removed, Baltimore, 11th: doing well and transferred to Chester, Penna., 16th July, 1863.

Contributed by Surgeon C. W. Jones, U. S. Vols.

3467. Six fragments from the inferior maxilla, fractured by a musket ball and removed by operation with successful
c. 4. result.

Private D. B., "E," 8th New York Heavy Artillery: admitted hospital, Washington, 11th June; specimen removed, 13th June; furloughed, recovered, 12th September, 1864.

Contributed by Acting Assistant Surgeon J. W. Fay.

2507. Seven fragments of bone removed by operation from the inferior maxilla, fractured by a musket ball, a small
c. 5. flattened piece of which is attached.

Corporal J. M., "G," 20th Michigan, 29: Cold Harbor, 3d June; admitted hospital, Washington, 8th June; specimen removed by Surgeon N. R. Mosely, U. S. Vols; transferred to Detroit, Mich., where he died, from hæmorrhage from the lungs, 7th December, 1864.

Contributed by the operator.

See class **XXVII.** B. B. d.

1689. Nine small fragments of bone and two molar teeth, removed by operation from the left side of the body of the
c. 6. inferior maxilla, which was fractured by a musket ball One fang of one of the teeth is broken off and remains in the socket, which forms part of the largest fragment. The fragments correspond to about one inch of the body of the bone.

Second Lieutenant W. E., 17th U. S. Infantry: Gettysburg, 2d July; admitted hospital, Baltimore, 9th July; granted leave of absence, 14th July, 1863; was retired from service, 15th February, 1865.

Contributed by Surgeon C. W. Jones, U. S. Vols.

463. Two fragments and the crowns of two molar teeth from the left side of the inferior maxilla, fractured by a musket
c. 7. ball and successfully removed.

Private H. A. P., 4th Rhode Island Battery: Antietam, 17th September; admitted hospital, Baltimore, 21st; fragments removed, 23d September; the wound had healed, 10th November, 1862.

Contributed by Surgeon C. W. Jones, U. S, Vols.

3845. The inferior maxilla fractured by a musket ball at the posterior part of the body on the right side. One inch of
c. 8. bone has been comminuted and removed. There is deposit of new bone on both surfaces of the ramus, and to a less extent on the anterior fragment, the fractured surface of which is necrosed. The patient died, on the fifty-third day, of hæmorrhage from the carotid, recurring forty days after ligation.

Private J. W. B., "A," 12th Georgia (Rebel): Monocacy, Md., 9th July; admitted hospital, Frederick, 12th; common carotid ligated by Assistant Surgeon R. F. Weir, U. S. Army, 20th July; died, 1st September, 1864.

Contributed by the operator.

3321. The right ramus of the inferior maxilla, fractured by a musket ball at the angle and successfully removed by
c. 9. operation.

Private T. C., "I," 5th New York Cavalry, 20: Shepherdstown, Va., 25th August; admitted hospital, Annapolis Junction, Md., 27th: specimen removed, 28th August; nearly recovered, 22d October, 1864.

Contributed by Acting Assistant Surgeon W. J. McHench.

1532. The left half of the body of the inferior maxilla, excised for comminuted fracture by a fragment of shell. The
c. 10. section is between the central incisors anteriorly and the last two molars behind, following the line of fracture, which involves the alveolar arch at those points only. The lower portion of the body of the bone is much comminuted. The alveoli are but slightly injured.

Private S. H., 86th New York: wounded, and excised on the field by Assistant Surgeon J. Theodore Calhoun, U. S. Army, Gettysburg, 3d July, 1863.

Contributed by the operator.

1162. The inferior maxilla, probably fractured by a musket ball. The body of the bone has been removed nearly
c. 11. to the angle on each side, and an irregular plate of new bone, measuring two inches in length, three-fourths of an inch in width, and one-half inch in thickness, has formed anteriorly, and is connected to the rami on either side by ligamentous bands.

Private H. C. B., "F," 30th North Carolina (Rebel): died, from inanition and exhaustion, one hundred and one days after injury, Frederick, 17th December, 1862.

Contributed by Surgeon H. S. Hewit, U. S. Vols.

564. One and a half inches of the right condyloid extremity of the inferior maxilla, including the articular surface,
c. 12. removed by operation.

Bugler J. S., "I," 2d Pennsylvania Cavalry, 31: conoidal ball, Cold Harbor, 3d June; admitted hospital, Washington, 10th; specimen removed, 11th; transferred to New York, 14th June, 1864.

Contributed by Surgeon N. R. Mosely, U. S. Vols.

522. Five fragments of the right body of the inferior maxilla and an incisor, the canine and a bicuspid tooth, removed
c. 13. by operation for gunshot fracture.

Private A. S, "G," 1st Maine Heavy Artillery: Petersburg, 18th June; operated upon by Dr. A. Garcelon; died, 26th June, 1864.

Contributed by the operator.

For other illustrations, see 349, **XXV.** A. B. c. 1; 560, **XXV.** A. B. c. 2.

f. Secondary Results of Injuries.

3979. A wet preparation of the inferior maxilla, showing a fracture of the body by a musket ball one-half inch to
f. 1. the left of the symphysis partially united by ligament. The fracture runs obliquely downward, forward and inward, and one inch of the body of the bone, with the canine, bicuspid, and first molar teeth, have been comminuted and partially removed. Several small necrosed fragments remain *in situ*. The patient died, nearly three months after the receipt of the wound, from the effects of injury of the spinal cord.

Private J. S., "D," 6th Alabama, (Rebel): Gettysburg, 3d July; admitted hospital, Frederick, Md, 18th July; died, 28th September, 1863.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

See 3985, **III.** A. B. b. 5; 3978, **XIX.** A. B. a. 37.

4090. The right half of the inferior maxilla, with a partially united
f. 2. transverse fracture just behind the canine tooth. The articular cartilage is removed from the condyle, and a small fragment split off the outer side has slidden down nearly to the angle, where it remains. Part of the inferior border in front of the angle has been removed, and the point of a fang of one of the molar teeth is seen internally just behind the fracture. *See figure* 33.

The patient died of suffocation caused by a fragment of meat impacted in the larynx.

Private J. G., "I," 7th Connecticut; died at hospital, New Haven, Conn., 3d October, 1863.

Contributed by Acting Assistant Surgeon W. C. Minor.

See 4091, **XIX.** B. A. a. 2.

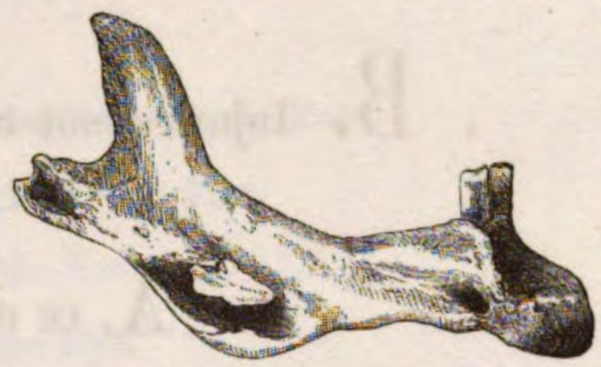

FIG. 33. Partially united gunshot fracture of the inferior maxilla. *Spec.* 4090.

For other illustrations, see 1683, **V.** A. B. c. 2; 2112, **V.** A. B. c. 98; 2573, **V.** A. B. d. 11.

C. Of the Eye. { a. Results of operations. b. Secondary results of injury.

a. RESULTS OF OPERATIONS.

3970. The left eye ball, extirpated for injury to the orbital nerves by a conoidal ball which entered the forehead one
a. 1. inch above the inner extremity of the right eyebrows, passing downward and outward, destroying the sight and lodging in the superior maxilla.

Private J. E., "H," 10th New Hampshire, 23: Shepherdstown, Va., 10th July; admitted hospital, Frederick, 31st July; removed, by Acting Assistant Surgeon J. H. Barthолf, 11th August; ball extracted near the last molar of the right side, 3d November; discharged the service, 18th November, 1863.

Contributed by the operator.

For other illustrations, see 4516, **XXVII.** B. A. c. 2; 4629, **XXVI.** A. 3, 135.

b. SECONDARY RESULTS OF INJURY.

See 1683, **V.** A. B. c. 2; 4627, **XXVI.** A. 1, 32; 4628, **XXVI.** A. 2, 79.

D. Of the Tongue.

See 3542, **II.** A. B. b. 12.

B. Injuries not caused by Gunshot.

A. Of the Bones of the Face.

a. Fractures from sabre cuts.
b. Fractures from other causes.
c. Dislocations.
d. Results of operations.
e. Exfoliations.

a. Fractures from Sabre Cuts.

See 970, **I.** B. A. a. 3.

b. Fractures from other Causes.

1414. b. 1. The skull of an unknown man exhibiting an old consolidated fracture of the nasal bone, probably after a blow from the fist. Firm union with some displacement has occurred, the right bone having been transversely fractured and tilted outward at the line of solution. The lower portion of the vomer shows marks of ulceration.

Contributed by Dr. Samuel C. Smoot.

For other illustrations, see 4442, **XXVII.** C. B. 2.

B. Of the Lower Jaw.

a. Fractures from sabre cuts.
b. Fractures from other causes.
c. Dislocations.
d. Results of operations.
e. Exfoliations.

b. Fractures from Other Causes.

1762. b. 1. The inferior maxilla fractured, as if by a direct blow, transversely in front of the first molar, which is tilted upward and backward. The edges of the fracture show slight traces of attempt at repair.

The specimen, from Sandy Hook, Maryland, is apparently of a young Negro.

Contributed by Assistant Surgeon James Willard, 1st Potomac Home Brigade.

c. Dislocations.

4246. c. 1. The inferior maxilla showing two simple fractures through the body, one a little to the right of the symphysis and the other an inch farther toward the right angle. The intervening fragment is wanting in the specimen. The ends of the fragments are carious and necrosed, with no attempt at union. The posterior fragment shows an opening through which an iron wire was passed to ligate the fragments. Both condyles are carious, and part of the articular cartilage has been removed.

Private L. P. T., "F," 3d Ohio, 48: admitted hospital, Louisville, Ky., 3d December; the fragments ligated with iron wire, 18th December, 1864; died, from acute gastritis following intoxication, 24th January, 1865.

Contributed by Surgeon R. R. Taylor, U. S. Vols.

C. Diseases and their Results
- A. Of the Bones of the Face.
- B. Of the Lower Jaw.
- C. Of the Nose.
- D. Of the Eye.
- E. Of the Tongue.
- F. Of the Teeth.

A. Of the Bones of the Face.

3469. A molar tooth with a fragment of the external plate of the inferior maxilla adherent and necrosed, the result of
A. 1. scurvy contracted in the prison at Andersonville. The fragment measures one-half by one inch, and was removed with the tooth in an attempt to extract the latter. The tooth is hollow and carious.

Private G. D. H., "I," 1st Maine Cavalry, 20: captured, 11th May; left Andersonville, Ga., 5th October; admitted hospital, Baltimore, 28th November; specimen removed, in attempting to draw the tooth, 1st December, 1864.

Contributed by Surgeon Thomas Sim, U. S. Vols.

557. The right superior maxilla, with a part of the palatine and alveolar processes
A. 2. from the left, necrosed and exfoliated. Supposed to be the result of mercurial salivation. The bone is nearly perfect; the outer wall of the alveolar process is blackened and eroded for one inch in length. In this case there was gangrene of the cheek with extensive loss of substance, which was afterward repaired by plastic operations, illustrations of which are in the museum. *See figure* 34.

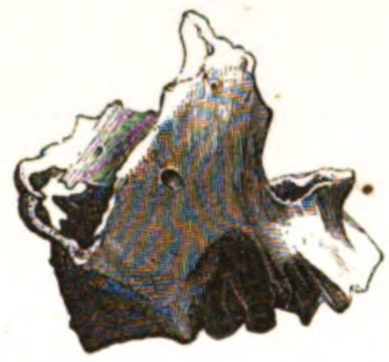

FIG. 34. Superior maxilla exfoliated after disease. *Spec.* 557.

Private C. B., Purnell Legion, Maryland Volunteers: taken sick and treated in camp, 5th June; admitted hospital, Frederick, Md., 4th August; gangrene appeared, 10th August, ceasing 1st September; bone removed, 1st October; discharged from service, 1st December, 1862.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

See 4252, **XXV.** C. A. 2; 4253 **XXV.** C. A. 3; 4254, **XXV.** C. A. 4; 4627, **XXVI.** A. 1, 28 A. *and* B.

See class **XXIII.** A. B.

B. Of the Lower Jaw.

4345. The inferior maxilla superficially necrosed and carious over almost the entire external and a part of the inner
B. 1. surfaces. Cause unknown. The articular cartilage has been removed from the condyles, which are more spongy than usual, and the body of the bone near the symphysis presents a worm-eaten appearance.

G. F., Negro cook, 93d Illinois, 23: admitted hospital, Washington, 31st May; died, 10th June, 1865.

Contributed by Surgeon R. B. Bontecou, U. S. Vols.

D. Of the Eye.

1195. A wet preparation of the crystalline lens extracted for disease.
D. 1. Contributor and history unknown.

III. INJURIES AND DISEASES OF THE VERTEBRAL COLUMN AND SPINAL CORD.

- **A.** Gunshot Injuries.
  - **A.** Recent Conditions.
    - a. Involving the bones only.
    - b. Involving the cord.
    - c. Results of operations.
    - d. Dislocations.
  - **B.** Secondary Conditions.
    - a. Involving the bones only.
    - b. Involving the cord.
    - c. Results of operations.
    - d. Dislocations.
- **B.** Injuries not caused by Gunshot.
  - **A.** Recent Conditions.
    - a. Involving the bones only.
    - b. Involving the cord.
    - c. Results of operations.
    - d. Dislocations.
  - **B.** Secondary Conditions.
    - a. Involving the bones only.
    - b. Involving the cord.
    - c. Results of operations.
    - d. Dislocations.
- **C.** Diseases.
  - **A.** Of the Bones.
  - **B.** Of the Cord and Membranes.

III. VERTEBRAL COLUMN AND SPINAL CORD.

A. Gunshot Injuries.

A. Recent Conditions.

a. Involving the bones only.
b. Involving the cord.
c Results of operations.
d. Dislocations.

a. Involving the Bones Only.

1647. The second, third and fourth lumbar vertebræ. A small bullet, as though from a carbine, which passed through
a. 1. the eleventh rib, transversely perforated from right to left the body of the third vertebra near its anterior face. Death occurred from hæmorrhage from the liver.

Private W. B., "I," 6th Pennsylvania Cavalry: Brandy Station, Va., 1st August, 1863; died while being carried to hospital at Washington.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See 3291, **IV.** A. B. b. 20; 1646, **XX.** A. A. a. 4.

3750. The last two lumbar vertebræ. The body of the fifth is torn up by a conoidal ball which passed transversely
a. 2. through the abdomen and lodged in the right iliac fossa.

Private J. D., "B," 5th Minnesota, 21: wounded and admitted hospital, Nashville, 15th December; died, 18th December, 1864.

Contributed by Acting Assistant Surgeon H. C. May.

3458. The body of the second lumbar vertebra, in which is lodged a conoidal ball fired at nine yards. The missile
a. 3. entered the abdomen on the left side, caused a depressed fracture of the inner table of the ilium near its crest, perforated the small intestine in two places, and exposed, but did not injure the cauda equina. The vertebra is vertically and obliquely fractured through its body.

Private W. B., "B," 55th Massachusetts (colored): shot by Provost Guard, Folly Island, S. C., 11th November, 1864 died six hours afterward.

Contributed by Assistant Surgeon Burt G. Wilder, 55th Massachusetts.

See class **XXVII.** B. B. d.

3780. Portions of the last dorsal and first lumbar vertebræ, with a conoidal ball lodged in the body of the former, which
a. 4. is badly shattered. The ball entered two inches below and outside of the right nipple, gouged out its calibre from the upper border of the eighth rib, passed through the lower lobe of the right lung, the diaphragm, the right lobe of the liver, and lodged as seen. The track of the ball in the liver was three inches in diameter. "The only symptom noticeable was hiccough."

Private W. A., "F," 114th U. S. Colored Troops: Brownsville, Texas, 28th January, 1866; died in thirty-eight hours.

Contributed by Assistant Surgeon Ira Perry, 9th U. S. Colored Troops.

See class **XXVII.** B. B. d.

b. Involving the Cord.

611. The first three lumbar vertebræ, with the spinous process of the second shattered by a conoidal ball which
b. 1. penetrated to the canal, "bruising the cord," and firmly impacting itself between the arches of the first and second. The case is remarkable in that the patient was not conscious of being wounded for some hours, and walked without difficulty. The missile is placed in position in the specimen.

Private J R., "I," 86th New York, 19: wounded, 22d August; admitted hospital, Washington, 25th; bullet removed by Surgeon R. H. Coolidge, U. S. Army, 26th; died, 27th August, 1862.

Contributed by Acting Assistant Surgeon S. R. Skillern.

See class **XXVII.** B. B. d.

4157. Portions of the last four cervical vertebræ. A conoidal ball passed diagonally through the bodies of the fifth and
b. 2. sixth from right to left and backward and downward and fractured the laminæ and transverse processes of the sixth and seventh, slightly lacerating the cord, forcing it to one side and compressing it seriously in its passage.

Corporal M. D., "D," 11th U. S. Infantry: on picket near the Weldon Railroad, 31st August; died, 1st September, 1864.

Contributed by Assistant Surgeon Edward Brooks, U. S. Army.

4086. The third, fourth and fifth cervical vertebræ. A conoidal carbine ball entered the right side, comminuting the base
b. 3. of the right lamina of the fourth vertebra, fracturing it longitudinally and separating it from the spinous process, at the same time fracturing the fifth through its pedicle and involving that transverse process. The missile passed directly through the canal with a slight inclination downward and to the rear, emerging through the left bases of the fourth and fifth laminæ, which are comminuted, and from which fragments were embedded in the muscles of the neck. The bullet in its course avoided the large cervical vessels.

From a case where death occurred a few hours after injury, 26th April, 1865.

See 4087, **III.** A. A. b. 4.

4087. A portion of the spinal cord from the cervical region, transversely perforated from right to left by a carbine bullet
b. 4. which fractured the laminæ of the fourth and fifth vertebræ. The cord is much torn and is discolored by blood.

From a case where death occurred a few hours after injury, 26th April, 1865.

See 4086, **III.** A. A. b. 3.

1331. The first three lumbar vertebræ. The body of the second is perforated by a conoidal pistol ball, fired at ten
b. 5. feet, which passed obliquely backward from left to right through the cord and escaped through the right lamina, lodging in the deep lumbar muscles.

Private J. McD., "K," 7th Michigan Cavalry: shot, 1st July, 1863, and died the same day.

Contributed by Acting Assistant Surgeon A. H. Crosby.

See 1332, **XX.** A. A. a. 6.

See class **XXVII.** B. B. d.

2843. The first six dorsal vertebræ and a portion of the left first rib. The rib is partially fractured at its greatest
b. 6. curvature by a conoidal ball, which afterward impinged against the third vertebra at the origin of the fourth rib and fractured its left transverse and spinous processes and laminæ.

Private W. L. B., "I," 21st Georgia, (Rebel,) 22: wounded and admitted hospital, Washington, 14th July, 1864; died the next day.

Contributed by Acting Assistant Surgeon H. M. Dean.

See 2844, **XIX.** A. B. a 19.

See classes **IV.** A. A. a.; **XXVII.** B. B. d.

3862. The last three dorsal and the first lumbar vertebræ. Portions of the right transverse process of the twelfth and
b. 7. of the spinous process of the eleventh have been carried away by a conoidal ball which injured the cord.

Private A. S, "B," 122d Ohio: Monocacy, 9th July; died, Frederick, 15th July, 1864.

Contributed by Acting Assistant Surgeon J. C. Shimer.

2330. The second, third, fourth, fifth, sixth and part of the seventh dorsal vertebræ with the posterior portions
b. 8. artificially removed. A bullet, which passed through the scapula and fractured the fifth and sixth ribs, has carried away the right transverse and the spinous processes of the fifth and sixth vertebræ and vertically fissured their bodies. The cord was destroyed at the point of injury.

Private N. P., "G," 124th New York, 18: died, Washington, 17th May, 1864.

Contributed by Acting Assistant Surgeon A. Ansell.

See 2391, **IV.** A. B. b. 41.

2238. The last six dorsal vertebræ. A conoidal pistol ball which perforated the liver entered on the right side of the
b. 9. body of the eleventh vertebra, passed upward and backward through the body of the tenth, completely shattering it posteriorly and breaking off the right pedicle, passed upward and to the left, emerging through the left lamina of the ninth vertebra, and rested against the corresponding rib. The eighth spinous process also was fractured.

Private J. S., "B," 1st District of Columbia Cavalry: wounded, admitted hospital, and died from hæmorrhage from the liver, Washington, 19th October, 1863.

Contributed by Acting Assistant Surgeon Carlos Carvallo.

See class **XXVII.** B. B. d.

3583. The two superior lumbar vertebræ, with the first completely and the second
b. 10. partially fractured vertically by a conoidal ball. The missile appears to have entered from the rear, shattered the spinous process of the first, fractured the arch of the second, passed through the column, and escaped into the abdomen. *See figure* 35.

Corporal J. E., "M," 14th N. Y. Heavy Artillery.

Contributed by Assistant Surgeon W. Thomson, U. S Army.

See class **XXVII.** B. B. d.

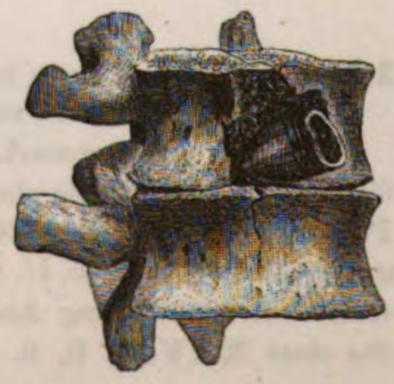

FIG. 35. Wound of entrance of a conoidal ball through the first lumbar vertebra. *Spec.* 3583.

3810. The posterior portion of the left ilium perforated between the posterior superior
b. 11. and inferior spinous processes, a part of the sacrum chipped at its posterior superior angle and the fourth lumbar vertebra, with a battered conoidal ball, which has shattered the left transverse process and broken the posterior face of the body, lodged in the canal. The right lamina is fractured adjacent to the inferior articular processes.

Corporal L. P., 14th New Jersey, 26: Monocacy, 9th July; admitted hospital, Frederick, 10th; died, 12th July, 1864.
Contributed by Acting Assistant Surgeon J. C. Shimer.
See classes **XI.** A. A. b; **XXVII.** B. B. d.

3748. The last four lumbar vertebræ. The bodies of the third and fourth are fractured at their left posterior junction.
b. 12. The left transverse processes and the spinous process of the fourth vertebræ are shattered by a conoidal ball which perforated the abdomen.
Private J. B., "I," 9th Minnesota, 28: Nashville, 16th December, 1864; admitted hospital the same day, and died the next.
Contributed by Acting Assistant Surgeon H. C. May.
See 3749, **XX.** A. A. a. 5.

3739. The first, second, third, and a section of the fourth lumbar vertebræ An iron grapeshot, about one inch in
b. 13. diameter, is lodged in the canal near the junction of the second and third. The spinous process of the first is destroyed and the laminæ vertically fractured at their junction. The spinous process and entire arch of the second are destroyed, except the left inferior articular process, which remains in position. This vertebra has a vertical fracture directly through its body, and the left pedicle and subjacent portion of the body have been broken off. The missile has entered by pressing open the fractured bones, which afterward enclosed it by their elasticity.
Sergeant W. L., "G," 18th New York Cavalry, 25: Pleasant Hill, La., 8th April; admitted hospital, New Orleans, 10th; died, 12th April, 1864.
Contributed by Surgeon Samuel Kneeland, U S. Vols.
See class **XXVII.** B. A. c.

4557. The last three cervical and part of the first dorsal vertebræ. A conoidal ball passed obliquely backward from
b. 14. the right front through the body of the sixth cervical, lacerating the cord and shattering the left lamina. A perpendicular fracture runs through the body of the seventh, and another through the left lamina of the sixth vertebra near the arch.
Unknown woman (colored): accidentally shot, Washington, 12th October, 1865; died in fifteen minutes.
Contributed by Assistant Surgeon P. Glennan, U S. Vols.

4064. The second lumbar vertebra with a section of the right anterior side of the body split off and the adjacent
b. 15. superior articular process fractured. The mode of preparation causes this specimen to present the appearance of the secondary stage.
Contributor and history unknown.
See 4065, **XVIII. II.** A. A. a. 1, *from the same case.*

B. Secondary Conditions.

- **a.** Involving the bones only.
- **b.** Involving the cord.
- **c.** Results of operations.
- **d.** Dislocations.

a. Involving the Bones Only.

1867. The last four cervical and first dorsal vertebræ. A severe contusion, encircled by a line of demarcation, occupies
a. 1. the anterior face of the sixth and seventh cervical, in both of which the caries extends to the canal. The missile was a bullet that fractured the right side of the lower jaw, and which the subject declared he had spit out. There were no indications of spinal injury during life.
Private G. A. A., "C," 20th New York, 35: probably Gettysburg, 3d July; died of pyæmia, Philadelphia, 21st July, 1863.
Contributed by Acting Assistant Surgeon Joseph Leidy.
See 1881, **II.** A. B. b. 4.

1710. The first four cervical vertebræ thirty-six days after partial fracture of the left posterior arch of the atlas by a
a. 2. conoidal ball, which also fissured the occipitial bone, against which it lodged. The missile, which caused constant suppuration and could not be extracted during life, is attached to the specimen. It entered one inch below and behind the left mastoid process and passed upward.
Private W. P., jr., "F," 114th Pennsylvania: Chancellorsville, 3d May; admitted hospital, Annapolis, 17th May; died, 8th June, 1863.
Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.
See class **XXVII.** B. B. d.

2737. The last four dorsal vertebræ, with the spinous process of the eleventh carried away and the right transverse
a. 3. process partially fractured.
Received, without history, from Annapolis.

843. Portions of the second, third and fourth dorsal vertebræ, with the spine of the second and right transverse process
a. 4. of the third fractured by a conoidal ball which passed through both scapulæ. The fragments are partly agglutinated by new deposit, and spiculæ are necrosed.

Private J. S. L., "G," 18th Massachusetts, 18: date of wound not reported; died, Philadelphia, 17th September, 1862.

Contributed by Surgeon P. B. Goddard, U. S. Vols.

See 699, **IV.** A. B. b. 18.

3524. The sixth, seventh, eighth, ninth and tenth dorsal vertebræ. The right transverse processes of the seventh and
a. 5. eighth are carried away, and a fragment of the ninth is chipped off. The seventh, eighth, ninth and tenth ribs were fractured, fragments of the first two of which are with the specimen.

Private S. B., "E," 4th Vermont, 23: Wilderness, 5th May; admitted hospital, Washington, 13th; died, exhausted, 21st May, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See class **IV.** A. B. b.

3471. Two dorsal vertebræ, the lower of which is deeply grooved on its anterior face by a conoidal ball which passed
a. 6. from left to right. Death occurred from internal secondary hæmorrhage from the spleen, through which the missile passed.

Corporal J. L. W., "A," 2d Connecticut Heavy Artillery, 38: Cedar Creek, 19th October; admitted hospital, Baltimore, 25th; died, 28th October, 1864.

Contributed by Acting Assistant Surgeon A. Walsh Emory.

2762. The third lumbar vertebra, retaining, half buried in the left side of its body, a nearly spent conoidal ball which
a. 7. entered from the rear. The bullet still presses between itself and the bone fragments of clothing, and rests half exposed in its long diameter. Immediately around the bullet are traces of commencing necrosis. The other portions of the bone escaped injury, but the crural nerve was wounded. The first and fourth vertebræ are mounted with the specimen.

Private T. D., "F," 1st Michigan Sharpshooters, 19: Petersburg, 26th June; admitted hospital, Washington, 1st July; tetanus appeared, 4th; died, 5th July, 1864.

Contributed by Assistant Surgeon George A. Mursick, U. S. Vols.

See 4627, **XXVI.** A. 1, 20.

See class **XXVII.** B. B. d.

679. The first nine dorsal vertebræ, with the right transverse processes of all except the first and ninth fractured by
a. 8. gunshot, which has also involved the corresponding ribs near their articulations. At several points there are marks of commencing caries.

Contributed by Surgeon P. B. Goddard, U. S. Vols.

See class **IV.** A. B. b.

1954. The sixth, seventh, eighth and ninth vertebræ, with portions of the corresponding ribs. The adjoining posterior
a. 9. portions of the bodies of the seventh and eighth vertebræ are fractured by a conoidal carbine or pistol ball, which has lodged between them and the head of the corresponding rib, partially splitting the latter. The canal is not involved, and no symptoms until nearly the close of life indicated where the missile had lodged.

Private T. C., "G," 8th Illinois Cavalry, 30: admitted hospital, Washington, June; died, with chronic diarrhœa, 9th December, 1863.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

See classes **IV.** A. B. a; **XXVII.** B. B. d.

3515. Portions of the dorsal vertebræ with a pistol ball firmly embedded in the body of the fifth, nearly the whole of
a. 10. which is shattered. The specimen is interesting from the fact of the injury not having been suspected during life.

Lieutenant ———, Mosby's command (Rebel): admitted hospital with a gunshot fracture of the upper third of the right arm, Sandy Hook, Md., 6th September; there was no wound of exit, and the ball was not discovered; died, from pneumonia and secondary hæmorrhage, 20th September, 1864. At the autopsy the track of the ball was shown to have been in the long axis of the arm and down the chest.

Contributed by Acting Assistant Surgeon J. Younglove.

See classes **VI.** A. B. b.; **XXVII.** B. B. d.

778. The first three cervical vertebræ, with the inferior portions of the occipital and left temporal bones, eight weeks
a. 11. after injury. The specimen shows a partial fracture of the left transverse process of the atlas, and destruction, by ulceration, of the articular surface on the same side.

Private L. E., 22: a bullet entered the open mouth and escaped two inches to the left of the spinous process of the second cervical vertebra, Antietam, 17th September; hæmorrhage to syncope on the field; slight arterial bleeding, Frederick, 31st October and 2d November; left side of the face paralysed, 13th; died, 14th November, 1862. The internal carotid had been severed and its proximal end closed by an organized clot.

Contributed by Acting Assistant Surgeon Redfern Davies.

See 881, **XVIII. II.** A. B. a. 3.

3333. Four dorsal vertebræ, with a carbine ball, which fractured the fifth rib on the right side, embedded in the body
a. 12. of the corresponding vertebra, through which it has nearly passed. Local caries exists around the places of fracture on the opposite sides of the bone.

Private O. A. N., "B," 13th New York Cavalry: Aldie, Va., 6th July; admitted hospital, Alexandria, 13th; died, exhausted, 23d July, 1864.

Contributed by Surgeon E. Bentley, U. S. Vols.

742. A wet preparation of the second, third and fourth lumbar vertebræ, with the body of the third transversely
a. 13. perforated from right to left by a musket ball. The cord not having been affected, no paralysis existed. A large abscess, in the midst of which was the bullet, occurred on the left side of the column.

Corporal T. J. R., "K," 7th South Carolina, (Rebel): Antietam, 17th September, 1862; died from colliquative diarrhœa, Frederick, date not reported.

Contributed by Assistant Surgeon James Phillips, U. S. Army.

3349. The first three lumbar vertebræ. In the left side of the body of the second a round ball, which entered between
a. 14. the ninth and tenth ribs and perforated the lower lobe of the left lung, is embedded. The canal appears to have been slightly encroached upon by a bony fragment, but no symptoms of paralysis are recorded. The bone adjoining the bullet is necrosed.

Private T. B. H., "F," 7th Maryland: Petersburg, 18th July; admitted hospital, Alexandria, 5th July; died, 9th July, 1864.

See class **XXVII.** B. B. d.

3171. A wet preparation of portions of the third, fourth and fifth dorsal vertebræ, with parts of the corresponding ribs
a. 15. on the left side. A bullet has lodged between the laminæ of the fourth and fifth vertebræ, its apex opening the canal but not interfering with the theca.

Private L. N., "G," 5th Wisconsin: died, in Baltimore, 30th September, 1865.

Contributed by Surgeon T. Sim, U. S. Vols.

See class **XXVII.** B. B. d.

1600. The third, fourth, and fifth dorsal vertebræ, with portions of the corresponding ribs. A conoidal carbine ball is
a. 16. lodged between the ribs against the pedicle and spinous process on the left side, which are fractured. The cord was found disorganized at that point.

Private A. L., Richardson's Cavalry, (Rebel,) 18: Warrenton Junction, Va.; admitted hospital, paraplegic, Alexandria, 3d May; died, 27th May, 1863.

Contributed by Surgeon Robert Reyburn, U. S. Vols.

See classes **IV.** A. B. a; **XXVII.** B. B. d.

3976. A wet preparation of the bodies and transverse processes of the last cervical and first two dorsal vertebræ, with
a. 17. the corresponding portion of the cord. A conoidal ball entered the anterior part of the neck and escaped between the seventh cervical and first dorsal spinous processes, causing effusion of blood within the canal but no direct injury to the cord.

Second Lieutenant G. C., "K," 20th North Carolina, (Rebel,) 24: Monocacy Junction, 9th July; died, Frederick, 12th August, 1864.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

1630. The second, third and fourth dorsal vertebræ. A conoidal ball which first passed through two inches of white
a. 18. oak, parallel with the fibre of the wood, entered the body below the left scapula and passed upward through the transverse process of the fourth, lodging in the canal opposite the third vertebra.

Private F. N. H., "G," 101st Illinois, 24: wounded on Steam Ram "Switzerland," off Simmsport, La., 3d June; died, on hospital-steamer "Woodford," 7th June, 1863.

Contributed by Surgeon James Roberts, Mississippi Marine Brigade.

See class **XXII.** B. B. d.

901. The third, fourth and fifth cervical vertebræ, with the left transverse processes fractured by a conoidal ball which
a. 19. is mounted with the specimen. The bullet entered near the inferior angle of the scapula, passed upward, fracturing its neck, shattered the clavicle, inflicted the injury shown in the specimen, and finally lodged behind the symphysis of the inferior maxilla.

Sergeant J. H. R., "H," 11th Pennsylvania Reserves: Fredericksburg, 13th December, 1862; died, Washington, January, 1863.

Contributed by Surgeon O. A. Judson, U. S. Vols.

See 640, **IV.** A. B. b. 3; 641, **V.** A. B. b. 6.

See class **XXVII.** B. B. d.

3851. A wet preparation of the third, fourth and fifth cervical vertebræ, of which the anterior portion of the body of the
a. 20. fourth on the left side is fractured by a bullet, which is attached. The vertebra has been sawn open, which must not be mistaken for the original injury. The man was wounded by two pistol balls; "one entered half an inch inferior to the clavicle near the middle of the insertion of the pectoralis major, passing in a posterior, lateral direction through the apex of the right lung, and lodged near the middle of the posterior border of the left scapula," and was removed in hospital; the other fractured the skull. "The clavicle and first rib were fractured at the wound of entrance, and the fourth and fifth ribs fractured near the spine. The second ball had lodged near the third cervical vertebra." "A small amount of pus was pent up in the body of the sphenoid."

Private G. E., "A," 2d Texas Cavalry: Brownsville, Texas, 4th June; complained of pain in upper part of neck, 25th September; died, 20th October, 1865. The right lung was disorganized.

Contributed by Acting Assistant Surgeon A. H. Norris.

See classes **I.** A. B. d.; **IV.** A. B. b.; **XXVI.** B. B. d.

For other illustrations, see 2411, **IV.** A. A. b. 3; 2448, **IV.** A. B. a. 8; 4092, **V.** A. B. b. 36; 3790, **V.** A. B. b. 14; 1656, **XI.** A. B. b. 2; 4486, **XXVII.** B. B. d. 58; 4623, **XXVII.** B. B. d. 178.

b. Involving the Cord.

683. The fourth and part of the third lumbar vertebræ, after fracture by a pistol ball which is attached. The bullet
b. 1. entered near the posterior superior angle of the right ilium, slightly fractured its superior border, glanced upward over the transverse process of the fifth lumbar vertebra, deflected against the lower border of the spinous process of h e third, penetrated the spinal foramen through the posterior arch of the fourth, separating its upper portion, again turning downward rested within the fourth, having fractured the right inferior articular process. A considerable part of the bullet was detached. The bullet rested within the leash of nerves forming the cauda equina.

Private T. K., *alias* J. B., "A," 6th U. S. Cavalry, 28: accidentally, Pelton, Texas, 26th March; admitted post hospital, (sixty miles distant,) Austin, 18th April; loss of sensation in the lower extremity; motor power partial and irregular; excessive pain toward the close of life; died, 28th May, 1866.

Contributed by Assistant Surgeon Cyrus Bacon, U. S. Army.

2999. The right halves of the fourth, fifth, sixth, seventh, eighth and ninth dorsal vertebræ. A pistol ball lodged
b. 2. against the right transverse process of the seventh, which it shattered. The pedicle of the seventh and inferior articular facet of the sixth are fractured. Partial paralysis of the left extremity at once occurred, and for the last three weeks it was complete below the wound. Pus was found in the theca at the autopsy.

Captain J. H., "A," 67th Indiana: Carrion Crow, La., 3d November; admitted hospital, New Orleans, 9th November; di ed, 19th December, 1863.

Contributed by Assistant Surgeon S. H. Orton, U. S. Army.

1694. Several cervical vertebræ, showing fractures from gunshot of the anterior portions of the bodies of the second,
b. 3. third, and fourth, which are necrosed at the points of impact. The canal has been opened by ulceration between the bodies of the third and fourth.

Contributor and history unknown.

806. The first four lumbar vertebræ, with a conoidal ball, which fractured the left pedicle and transverse process of the
b. 4. third, embedded. The bullet is embraced by the fractured bone, which has been consolidated by the deposition of callus. The ball entered half-way from the twelfth rib to the crest of the ilium, penetrating neither the abdominal nor peritoneal cavity. Paralysis of the sphincter existed for three days before death, indicating the involvment of the cord.

Private S. R., 14th Indiana: Antietam, 17th September; died, Frederick, 23d October, 1862.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

See class **XXVII.** B. B. d.

3985. The first six cervical vertebræ three months after injury. A battered conoidal ball, which fractured the inferior
b. 5. maxilla and passed through the pharynx, is lodged in the third, the body of which is transversely fractured and much necrosed. The entire left half of the bone is shattered, and necrosis has involved the adjoining vertebræ. The canal was ultimately opened by necrosis and the cord became softened.

Private J. S., "D," 6th Alabama, (Rebel,) 18: Gettysburg, 1st July; slight pain in the neck noticed, Frederick, 1st September; abscess in the neck opened, 12th; partial paralysis occurred, 19th; complete paralysis, 21st; died, 28th September, 1863.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

See 3979, **II.** A. B. f. 1; 3978, **XXIX.** A. B. a. 37

See class **XXVII.** B. B. d.

3449. The twelfth dorsal vertebra fractured on the lower portion of the right side by a pistol ball. The track of the
b. 6. missile is carious.

Private J. McS., 2d New York Cavalry, 35: admitted hospital, Alexandria, 28th October; died, after excessive hæmatemesis, 18th November, 1864.

Contributed by Surgeon Edwin Bentley, U. S. Vols.

See 3500, **III.** A. B. b. 7.

3500. A wet preparation of the lower half of the spinal cord after fracture of the twelfth dorsal vertebra. In its
b. 7. recent state the dura mater was congested and firmly adherent to the vertebra, and the substance of the cord was very red.

Private J. McS., 2d New York Cavalry, 35; admitted hospital, Alexandria, 28th October; died, 18th November, 1864.

Contributed by Surgeon Edwin Bentley, U. S. Vols.

See 3449, **III.** A. B. b. 6.

3185. Two lumbar vertebræ, with a battered conoidal ball embedded between the spinous and transverse processes of
b. 8. the second, which encroached upon the canal and induced fatal spinal meningitis.

Corporal G. B., "D," 22d Pennsylvania: probably Petersburg; admitted hospital, Baltimore, 3d; died, 5th July, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

See class **XXVII.** B. B. d.

1080. A wet preparation of a portion of the spinal cord and membranes opposite the fifth dorsal vertebra. A conoidal
b. 9. ball passing from right to left fractured the spinous process of the fifth dorsal vertebra. The specimen has been longitudinally split at two places on its posterior surface, but exhibits in its present condition no abnormal condition except a possible thickening. In the recent state the membranes were somewhat injected and the substance of the cord appeared a little darkened. A large sac filled with clotted blood extended from the fifth cervical to the first lumbar vertebra averaging three inches in breadth. An abscess one inch in width, bound down by the deep fascia, extended from the last cervical to the first dorsal vertebra.

Private J. N, "F," 1st Maryland, 26: Hatcher's Run, Va., 6th February; admitted hospital, Baltimore, 11th February; died, from secondary hæmorrhage, 1st March, 1865.

Contributed by Acting Assistant Surgeon W. G. Smull.

4346. The last two cervical and first three dorsal vertebræ. A bullet fractured completely the left transverse process
b. 10. of the seventh and partially those adjoining it. A partial fracture extends down the spinous process of the first dorsal. All the fractured extremities are carious, and a small deposit of callus has occurred on the first spinous process.

Private D. A. C., "D," 4th New York Heavy Artillery, 17: Petersburg, 31st March; admitted hospital, Washington, 4th April; died, 27th April, 1865.

Contributed by Surgeon R. B. Bontecou, U. S. Vols.

3850. The fourth, fifth, sixth and seventh dorsal vertebræ. All the processes of the sixth, except a portion of the left
b. 11. transverse, have been carried away by a conoidal ball which passed from left to right and injured the posterior portion of the body of that bone. The inferior portion of the fifth and superior portion of the sixth spinous processes are also fractured.

Private H. F. W., "H," 6th Michigan Cavalry, 48: wounded near Winchester, November; admitted hospital, paraplegic, Frederick, 25th December, 1864; died, 3d January, 1865.

Contributed by Acting Assistant Surgeon J. C. Shimer.

2204. The eighth and ninth dorsal vertebræ. A small conoidal pistol ball is lodged in the body of the ninth vertebra,
b. 12. which is much necrosed and through which ulceration has extended to the canal.

A. W., (a political prisoner,) 33: wounded, 10th February; admitted hospital, Nashville, 3d March; died, from pneumonia, 15th March, 1864.

Contributed by Acting Assistant Surgeon G. P. Hachenburg.

See class **XXVII.** B. B. d.

2579. Several lumbar vertebræ, with the right transverse processes fractured by a bullet which crushed the cord.
b. 13. Private L. W. C., "G," 2d United States Sharpshooters (Volunteers): wounded, 23d May; admitted hospital, Washington, 29th May; died, 16th June, 1864.

Contributed by Surgeon G. L. Pancoast, U. S. Vols.

3530. The fifth, sixth, and seventh dorsal vertebræ, with a conoidal bullet, which impinged against the right transverse
b. 14. process, destroying it and partially fracturing the spinous process and the body, against which it lodged. The marks of incipient caries are observable around the seats of fracture.

Private W. H. C., "H," 14th New York Heavy Artillery, 20: wounded in Virginia; admitted hospital, Washington, 26th May, 1864; died the next day.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See class **XXVII.** B. B. d.

148. The third and fourth lumbar vertebræ, with the fourth fractured in the upper portion of the right side of its body.
b. 15. Private A. H., 105th Pennsylvania: wounded, 2d July; admitted hospital, Washington; died, 3d August, 1862.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

3190. A wet preparation of a portion of the cord and membranes after fatal spinal meningitis. The membranes are
b. 16. ulcerated at a point opposite the fracture of the dorsal vertebra.

Private T. B., "F," 122d Ohio, 27: admitted hospital, Baltimore, 15th May; died, 20th July, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

3030. The sixth, seventh and eighth dorsal vertebræ. A conoidal ball which entered the left scapula near the inferior
b. 17. angle has lodged in the seventh vertebra and is embedded at the junction of the processes with the body on the left side, encroaching upon the canal.

Corporal G. W. M., "B," 53d Pennsylvania, 19: Cold Harbor, 3d June; admitted hospital, paraplegic, Washington, 7th; died, 19th June, 1864.

Contributed by Surgeon R. B. Bontecou, U. S. Vols.

See 3089, **IV.** A. B. b. 14.

See class **XXVII.** B. B. d.

1114. The second, third, and fourth dorsal vertebræ. The spinous and left transverse processes of the second are
b. 18. shattered by a conoidal ball, which lodged, closing the spinal canal. A portion of the right rib, which is attached, is shattered in its head. Slight osseous deposits have occurred on each of the bones in this specimen. This man lost his left eye by a shell, and received a scalp wound of the left side at the same time.

Corporal W. J. F., "B," 1st Michigan: Chancellorsville, 3d May; died, 13th May, 1863.

Contributed by Assistant Surgeon C. C. Byrne, U. S. Army.

See class **XXVII.** A B. d.

2939. The eighth, ninth, and tenth dorsal vertebræ. A conoidal ball is embedded
b. 19. in the vertebral canal of the ninth, having carried away parts of the right transverse and spinous processes of the eighth and ninth. *See figure* 36.

Private F. L., "H," 8th New York, 26: Cold Harbor, 3d June; admitted hospital, paraplegic, Washington, 11th June; died, 2d July, 1864.

Contributed by Surgeon O. A. Judson, U. S. Vols.

See 4627, **XXVI.** A. 1, 24.

See class **XXVII.** B. B. d.

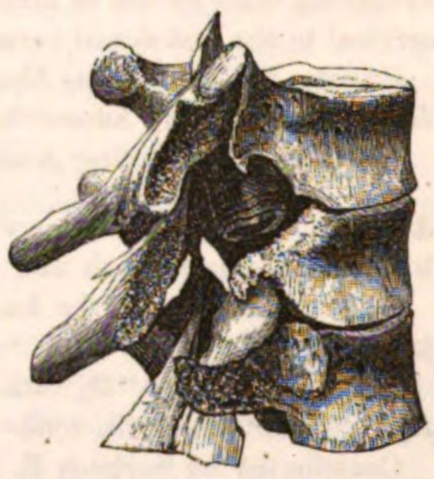

FIG. 36. Dorsal vertebræ fractured by a conoidal ball which lodged in the canal. *Spec.* 2939.

4093. The last dorsal and first two lumbar vertebræ. A conoidal ball, which destroyed
b. 20. the spinous process of the twelfth dorsal and a part of the right pedicle of the first lumbar, remains in the spinal canal.

Private J. B., "G," 1st Maine Cavalry: Petersburg, 1st April; admitted hospital, Washington, 4th; died, 12th April, 1865.

Contributed by Acting Assistant Surgeon C. H. Bowen.

See class **XXVII.** B. B. d.

3523. The third and fourth lumbar vertebræ. A conoidal ball from the rear has entered the spinal canal, having
b. 21. fractured the spinous processes and arches of the second and third vertebræ, which, in this specimen, are attached.

Private E. H., "E," 149th Pennsylvania, 40: wounded, 8th May; admitted hospital, paraplegic, and died in a few hours, Washington, 18th May, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See class **XXVII.** B. B. d.

1525. A dorsal vertebra traversed on the under side of the body by a bullet which has fractured the transverse and
b. 22. spinous processes.

Contributed by Surgeon John A. Lidell, U. S. Vols.

3230. The fourth, fifth and sixth dorsal vertebræ. A conoidal ball fractured the posterior portion of the right scapula
b. 23. for two inches, passed upward and fractured the sixth rib externally to its tubercle, passed through the arches of the fifth and sixth vertebræ, and lodged in the cervical portion of the left trapezius. The lower border of the right transverse process of the sixth, the spinous processes of both, and a portion of the left transverse process of the fifth have beent carried away, and incipient caries exists in the body of the sixth.

Corporal T. S., "C," 205th Pennsylvania: probably wounded before Petersburg, about 1st April; received at hospital, dead, Alexandria, 8th April, 1865.

Contributed by Surgeon Edwin Bentley, U. S. Vols.

See class **XXVII.** B. B. d.

3796. The third and fourth lumbar vertebræ with a conoidal ball, which entered from the right rear, deeply embedded
b. 24. at the junction of the bodies. The missile shattered the right superior articular process. The left ankle and lower third of left femur were shattered at the same time.

Sergeant W. W. C., "H," 26th Massachusetts: Opequan, 19th September; thigh amputated in the upper third by Assistant Surgeon J. N. Brant, 9th New York Heavy Artillery, 20th September; died exhausted, with partial paralysis of the right leg, 3d November, 1864.

Contributed by Acting Assistant Surgeon W. Leon Hammond.

See classes **XVI.** A. A. e.; **XIII.** A. A. d.; **XXVII.** B. B. d.

2447. b. **25.** The eleventh and twelfth dorsal vertebræ. The spinous process of the twelfth is vertically fractured near its extremity, and the body of the vertebra is transversely fractured with comminution in its superior fourth. The fractured edges are necrosed, and the bony walls of the canal show traces of suppuration.

W. P., Sailmaker's Mate, U. S. S. "Sciota": blown up by a torpedo, and received on U. S. S. "Tallahatchie," Mobile Bay, Ala., 14th April; died in hospital, Pensacola, Fla., 5th May, 1865.

Contributed by Surgeon P. J. Horwitz, Chief of the Bureau of Medicine and Surgery, U. S. Navy.

1198. b. **26.** The sacrum and last three lumbar vertebræ. A round ball opened the sacrum from the rear, entered the spinal canal, and remained between the theca and the body of the fifth lumbar vertebra. There was no paralysis of sensation or motion.

Private M. H., "D," 13th New York: Gaines' Mill, 27th June; died, exhausted, Philadelphia, 27th December, 1862.

Contributed by Acting Assistant Surgeon G. W. Morehouse.

See class **XXVII.** B. B. d.

1791. b. **27.** Portions of several cervical vertebræ four weeks after injury, showing the bodies of the third and fourth nearly entirely carried away by gunshot and subsequent suppuration. The borders of the cavity are necrosed, and the membranes have ulcerated sufficiently to expose a large extent of the cord. The specimen illustrates how life may be preserved for a long time after extensive injury to the spinal canal.

Private E. W. V., "K," 1st Virginia Cavalry (Rebel): wounded, 13th April; died, 11th May, 1863.

Contributed by Surgeon B. Beust, U. S. Vols.

3984. b. **28.** The fourth, fifth, sixth, seventh and eighth dorsal vertebræ. A conoidal ball which entered the left intervertebral notch between the fourth and fifth vertebræ, slightly fracturing the pedicle, and then lodged point downward in the canal, is sawn through in a section made at that point.

Private C. S., "E," 87th Pennsylvania: admitted hospital, paraplegic, Frederick, 10th July; died, 13th October, 1864.

Contributed by Acting Assistant Surgeon W. S. Adams.

See class **XXVII.** B. B. d.

4082. b. **29.** The fifth and sixth dorsal vertebræ and a portion of the fourth. A conoidal ball entered near the left clavicle, passed downward through the third, fourth and fifth vertebræ, and was found lying against the sixth rib on the right side. The body of the fourth is carried away and the transverse process of the fifth is shattered, together with the terminations of the fifth and sixth ribs. Slight deposits of new osseous matter are seen.

Private G. H. C, "H," 64th New York, 17: probably Petersburg, 25th March; admitted hospital, Washington, 30th March; died, 5th April, 1865.

Contributed by Acting Assistant Surgeon J. P. Arthur.

757. b. **30.** The second, third and fourth dorsal vertebræ. A conoidal ball entered above the right transverse process of the third and emerged from the corresponding intervertebral notch on the left side of the spinal column.

Private J. J., 14th Connecticut: Antietam, 17th September; admitted hospital, Frederick, 20th September; died, 11th October, 1862.

Contributed by Assistant Surgeon G. L. Porter, U. S. Army.

See class **XXVII.** B. B. d.

2532. b. **31.** The lumbar vertebræ, with the third fractured by a conoidal ball which is attached. The missile appears to have passed from the left directly through the intervertebral notch between the third and fourth vertebræ, chipping the superior articular process of the fifth and the adjacent portion of the spinous process of the fourth, fracturing the left transverse process of the fourth, and emerging through the body of that vertebra on the right side. Life continued long enough for incipient caries to present itself.

Contributed by Surgeon John A. Lidell, U. S. Vols.

See class **XXVII.** B. B. d.

4083. b. **32.** The seventh cervical and first seven dorsal vertebræ. A conoidal ball entered near the eighth vertebra on the right side and passed upward and inward through the bodies of each, shattering them, until it lodged in the third against the bottom of the second. The left transverse processes of the sixth and seventh are carried away, and the right ones are fractured. A nearly transverse section has been made through the body of the fifth, which is fractured, and its right lamina shattered. The bodies of the third and fourth are much shattered. Very slight new osseous deposits occur at various points on the specimen.

Sergeant J. T. H., "B," 60th Georgia, (Rebel,) 24: probably Petersburg, 25th March; admitted hospital, Washington, 30th March; died, 4th April, 1865.

Contributed by Acting Assistant Surgeon J. P. Arthur.

See class **XXVII.** B. B. d.

2766. The first three and a section of the fourth lumbar vertebræ. The third and fourth are obliquely perforated by
b. 33. a conoidal bullet, which carried away the right transverse process of the fourth, entered that vertebra just anterior to its root, and passing transversely upward lodged about the middle of the left side of the body of the third vertebra. The body of the third vertebra on the right side appears to have been injured by another missile of small size, but it is not mentioned in the history. Caries marks the track of each bullet. A section made after death passes through both wounds in the third vertebra. The cord was impinged upon by a displaced fragment of the fourth vertebra. The conoidal bullet, sawn obliquely, is mounted with the specimen.

Private G. D., "I," 26th Pennsylvania: Gettysburg, 1st July; admitted hospital, Philadelphia, 13th; the bullet could not be found, although a vertebral fracture was detected; there was no paralysis of sensation or motion, but great pain in the wound was complained of; became much worse, 20th; died, 24th July, 1863.

Contributed by Acting Assistant Surgeon Wm. V. Keating.

See class **XXVII.** B. B. d.

3478. Several of the dorsal vertebræ, showing an old transverse fracture with lateral displacement of the body of
b. 34. the seventh.

There is no history to the case, but death does not appear to have been prompt.

Received from hospital Second Division, Twentieth Corps.

717. A wet preparation from the lower portion of the spinal cord severed by a conoidal ball between the twelfth
b. 35. dorsal and first lumbar vertebræ, which were transversely fractured, The eleventh and twelfth ribs on the right side were fractured also. The cord is ragged at the point of section, and the lower portion, which has lost its sheath, is congested.

Private W. S. L., "C," 32d Iowa, 32; before Nashville, 10th December, 1864; died, exhausted, 4th January, 1865.

Contributed by Assistant Surgeon S. C. Ayres, U. S. Vols.

See 4710, **XXVII.** B. B. d, 214.

796. Portions of the sixth, seventh, eighth and ninth dorsal vertebræ. The transverse processes of the seventh and
b. 36. eighth and the spinous process of the eighth are fractured and the canal opened. There are trivial osseous deposits.

Private A. C., "C," 32d New York: admitted hospital, with paraplegia and hyperæthesia of the crural nerves, Washington, 14th May, 1862; died from pyæmia.

Contributed by Assistant Surgeon C. C. Byrne, U. S. Army.

B. Injuries not caused by Gunshot.

A. Recent Conditions. { **a.** Involving the bones only. **b.** Involving the cord. **c.** Results of operations. **d.** Dislocations.

a. Involving the Bones Only.

300. A ligamentous preparation of the axis and atlas, showing an absence of dislocation after execution by hanging.
a. 1. The transverse ligament was slightly nicked in the autopsy, but not sufficiently to permit any displacement. This specimen, with others from the same case, is good evidence of the mode of death in some cases of hanging.

Captain H. W. (Rebel): hung by sentence of military commission, Washington, 10th November, 1865.

Contributed by Brevet Major W. Thomson, Assistant Surgeon, U. S. Army.

See 298, **VIII.** A. B. a. 1; 299, **XIX.** B. A. a. 1; 301, **XXII.** B. A. c. 1; 302, **XXII.** B. A. c. 3.

b. INVOLVING THE CORD.

2080. Two fragments of the left lamina of the fourth cervical vertebra, which pressed upon the cord and were removed
b. 1. after death.

Captain T. J., C. S., U. S. Vols.: injured by a falling house, Larkinsville, Ala., 31st December, 1863; paraplegia existed, but the exact injury could not be made out during life; death from asphyxia occurred, January, 1864.

Contributed by Surgeon J. S. Prout, 26th Missouri.

3159. A wet preparation of a portion of the spinal cord after a simple vertical fracture of the sixth cervical vertebra.
b. 2. The posterior edges of the fracture pressed upon the anterior surface of the cord opposite the origins of the seventh and eighth cervical nerves. The spinous processes of the fourth, fifth and sixth vertebræ were dislocated and sufficiently fractured to press upon the roots of the sixth, but not on those of the fifth nerve. At the points of direct injury the cord in the recent state was inflamed and disorganized into a red pulp, which, in a degree, is seen by a vertical section of the wet specimen. The origin of the phrenic nerve was uninjured by the accident, but became gradually involved in the inflammation which extended along the gray substance almost to the medulla oblongata.

Private J. A. T., "I," 1st New York Engineers, 18: struck the hard beach with the top of his head in diving in two feet of water, Folly Island, S. C., 27th July, 1864; died, from asphyxia, after sixty hours.

Contributed by Assistant Surgeon Burt G. Wilder, 55th Massachusetts.

d. DISLOCATIONS.

549. A ligamentous preparation of the first six cervical vertebræ. There is a complete and symmetrical dislocation
d. 1. backward of the fifth upon the fourth, with a rupture of the subflavian and capsular ligaments, and also of the attachment of the ligamentum nuchæ. The superior posterior edge of the body of the fifth encroached upon the spinal canal sufficiently to bend it at that point at an abrupt angle, reducing its antero-posterior diameter more than one-half, but the cord was not lacerated nor its meninges torn, which may be accounted for by the separation of one and a half inches between the spinous processes of the fourth and fifth permitting it to bulge posteriorly. On the right side a portion of the anterior tubercle of the transverse process has snapped off.

Private J. F., "B," 2d U. S. Infantry, 35: In attempting to turn a somersault without touching his hands or head, fell upon his head, 10th February, 1866. Sensation and power of motion were wanting from the point of injury downward, but consciousness was not affected; death followed in forty-four hours.

Contributed by Assistant Surgeon C. C. Gray, U. S. Army.

B. Secondary Conditions.

- a. Involving the bones only.
- b. Involving the cord.
- c. Results of operations.
- d. Dislocations.

b. INVOLVING THE CORD.

149. Several vertebræ eighteen days after injury. The first lumbar is transversely fractured through the body in its
b. 1. upper third, with each pedicle broken and the left transverse and spinous processes encroaching upon the cord, which, with the membranes, was lacerated at the lumber and dorsal junction.

Corporal J. B., "C," 10th New York: struck by a tree-top (which was severed by a shell) while felling timber, Hatcher's Run, Va., 11th March; paraplegia, with undiminished sensation, existed until death, Washington, 29th March, 1865.

Contributed by Acting Assistant Surgeon H. Dusenbury.

See 150, **III.** B. B. b. 2.

150. A wet preparation of the lower portion of the spinal cord, lacerated at the dorsal and lumbar junction by a falling
b. 2. tree which transversely fractured the first lumbar vertebra. The membranes are torn entirely across, except a few fibres anteriorly and posteriorly, and were congested above and below the seat of injury. At the autopsy clots of diffused blood were found near the fracture. The specimen shows the lower portion of the cord, severely lacerated and drawn up into a bundle at the seat of injury, entirely deprived of the membranes.

Corporal J. B., "C," 10th New York: wounded by a tree falling under shell fire, Hatcher's Run, Va., 11th March; paraplegia, with undiminished sensation, existed until death, Washington, 29th March, 1865.

Contributed by Acting Assistant Surgeon W. Dusenbury.

See 149, **III.** B. B b. 1.

1160. The fourth, fifth and a portion of the sixth dorsal vertebræ longi-
b. 3. tudinally sawn asunder to exhibit a knife wound. The weapon entered the superior portion of the spinous process of the vertebra a short distance to the left of the median line, severed the cord and embedded itself in the body of the bone. One and one-fourth inches of the blade, which appears to have been broken off at the time of the injury, remains fixed in the specimen. *See figure* 37.

Private G. S., "B," 15th New York Engineers: stabbed at Falmouth, Va., 20th April; admitted hospital, paraplegic, Washington, 22d April died, exhausted, 26th May, 1863.

Contributed by Assistant Surgeon C. C. Byrne, U. S. Army.

See 4627, **XXVI.** A. 1, 25.

See class **XXVII.** A. A. b.

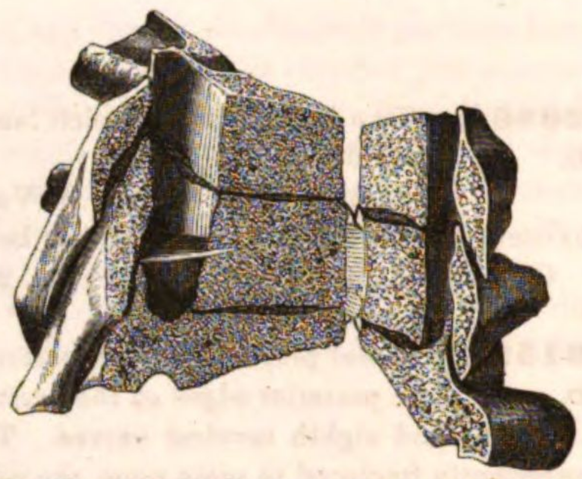

FIG. 37. Dorsal vertebræ sawn open to exhibit a knife wound. *Spec.* 1160.

2255. The fifth, sixth, seventh, eighth and ninth dorsal vertebræ, completely fractured through the eighth and
b. 4. displaced forward. The bones are partially retained in their abnormal relation by callus deposited in the neighborhood. The fracture passes transversely through the body and embraces the processes also.

Private J. C., "H," 4th Ohio, 23: crushed by a tree, 21st December, 1863; admitted hospital, paraplegic, Alexandria, 22d January; died, exhausted, 28th April, 1864.

C. Diseases.

750. The cervical vertebræ, from a colored woman, showing a carious condition due to tertiary syphilis.

C. 1. E. E., 18: died suddenly from a laryngeal abscess, Freedmen's Hospital, Washington, 2d November, 1866.
Contributed by Assistant Surgeon P. Glennan, U. S. Vols.

IV. INJURIES AND DISEASES OF THE BONES OF THE THORACIC PARIETES,

Not including the Vertebræ nor involving the Shoulder Joint.

- **A.** Gunshot Injuries.
  - **A.** Recent Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. After operations.
      - cy. Excisions.
      - cz. Removal of fragments.
    - d. Dislocations.
  - **B.** Secondary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. After operations.
      - cy. Excisions.
      - cz. Removal of fragments.
    - d. Dislocations.
- **B.** Injuries not caused by Gunshot.
  - **A.** Recent Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. After operations.
      - cy. Excisions.
      - cz. Removal of fragments
    - d. Dislocations.
  - **B.** Secondary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. After operations.
      - cy. Excisions.
      - cz. Removal of fragments.
    - d. Dislocations.
- **C.** Diseases.

IV. BONES OF THE THORACIC PARIETES.

A. Gunshot Injuries.

A. Recent Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. After operations.
  - cy. Excisions.
  - cz. Removal of fragments.
- d. Dislocations.

a. Contusions and Partial Fractures.

See 2843, **III.** A. a. b. 6.

b. Complete Fractures.

1472. b. 1. The posterior portion of the first rib on the right side, fractured at its neck by an iron ball from spherical case. The fracture across the body of the rib, as seen in the specimen, was made to assist in the post mortem examination. The jugular vein was perforated by the missile.

Private H. O., Battery "A," 5th U. S. Artillery, 23: Suffolk, Va., 15th April; died, 18th April, 1863.

Contributed by Surgeon T. H. Squire, 89th New York.

See 1055, **XVIII. III.** A. b. a. 1.

1644. b. 2. The right clavicle comminuted at its inner third by a ball which passed through the apex of the right lung, struck the seventh cervical vertebra, and was extracted near the inferior angle of the scapula.

Bugler J. R., 1st U. S. Cavalry: killed in battle, Brandy Station, 1st August, 1863. Sent to Washington for interment, by order of General Buford.

Contributed by Medical Cadet Edward D. Mitchell, U. S. Army.

2411. b. 3. The seventh, eighth and ninth dorsal vertebræ, with the fifth, seventh and eighth ribs of the right side. The right transverse process of the eighth vertebra and the dorsal extremity of the corresponding rib are chipped by a bullet, which then passed on through the chest, fracturing the fifth rib near its middle and escaping under the axilla. The fifth rib is obliquely broken, comminuted on its internal surface with a transverse fracture externally.

Private G. P. L., "F," 4th New York Heavy Artillery, 28: South Side R. R., Va., 2d April; admitted hospital, Washington, 5th; died, 9th April, 1865.

Contributed by Assistant Surgeon W. F. Norris, U. S. Army.

See class **III.** A. b. a. 20.

851. b. 4. The left scapula, showing two perforations of the lower plate near its middle connected by a fissure. The supra-spinous fossa has been chiefly carried away.

From the battle-field of the first Bull Run.

Contributed by Surgeon Jerome B. Green.

1217. b. 5. The right scapula extensively fractured by a shell, which has entirely carried away the spine and a large portion of the dorsum. A fissure extends into the glenoid cavity. The extremity of the acromion, separated from its attachments, is present.

Private F. T., "D," 5th New Jersey, 46: admitted hospital, Washington, 9th; died, 12th May, 1863.

Contributed by Surgeon O. A. Judson, U. S. Vols.

For other illustrations, see 3291, **IV.** A. b. b. 20.

B. Secondary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. After operations.
  - cy. Excisions.
  - cz. Removal of fragments.
- d. Dislocations.

a. Contusions and Partial Fractures.

1141. a. 1. A portion of the ninth rib on the left side, with a well-marked "willow fracture." The distance embraced by the fracture of the inner surface is two and a half inches. Externally only the lower border is broken.

Private W. T., "C," 33d North Carolina, (Rebel,) 20: second Fredericksburg, 3d May; admitted hospital, Washington, 11th; died, 21st May, 1863.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

See 1142, **XIX.** A. B. a. 9.

See class **XXVII.** B. B. d.

3823. a. 2. A portion of the fourth rib from the left side, with an oblique partial fracture at the junction of the anterior and middle thirds. Externally the continuity of the bone is not interfered with; internally the fracture is one inch in length. The bullet struck below the left nipple and escaped six inches beneath the axilla, without having penetrated the thorax.

Corporal J. F. S., "F," 2d Massachusetts Cavalry, 28: Bunker Hill, Va., 13th September; died, with pleuro-pneumonia, Frederick, 18th September, 1864.

Contributed by Acting Assistant Surgeon G. M. Paulin.

1901. a. 3. The anterior portion of the eighth rib on the right side fractured with splintering of the internal surface. A moderate osseous deposit has occurred.

Sergeant J. B E., "D," 30th North Carolina, (Rebel,) 19: Kelly's Ford, Va., 7th November; admitted hospital, Washington, 9th November; died, with pleuritis, 9th December, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

963. a. 4. A portion of one of the ribs, partially fractured with displacement inward of a small fragment. The bone at the point of impact is necrosed. Externally there is a thin layer of new osseous matter, which on the internal surface is much more abundant.

Received from Frederick, Md.

Contributor and history unknown.

3473. a. 5. The sternum, contused in the upper portion of the middle third by a musket ball which separated the upper thirds at their line of union. There is superficial necrosis at the point of impact.

Private D. S., "A," 121st New York, 22: Cedar Creek, 19th October; admitted hospital, Baltimore, 24th October; died, 6th November, 1864.

Contributed by Acting Assistant Surgeon J. J. Cockrill.

2193. a. 6. The sternal half of the left clavicle, exceedingly necrosed and honeycombed on its inferior surface, as if after a contusion.

Lieutenant J. J., "E," 5th Tennessee (Rebel): wounded, Mission Ridge, 25th November, 1863; admitted hospital from Chattanooga, with a large abscess over the clavicle and another over the symphysis pubis, Nashville, 16th February; died, 23d February, 1864.

Contributed by Acting Assistant Surgeon Preston Peter.

1561. a. 7. The posterior portion of the tenth and eleventh ribs of the left side, with a conoidal ball which passed between them partially fracturing the tenth rib and the transverse process of the eleventh dorsal vertebra. The wound of entrance in the rib is well rounded and the two are firmly agglutinated by osseous deposit. The missile was removed from behind the tenth rib two days before death.

Private T. P. C. C., "A," 9th Mississippi, (Rebel,) 19: Petersburg, 5th November, 1864; died, from chronic dysentery, Washington, 20th August, 1865.

Contributed by Assistant Surgeon W. F. Norris, U. S. Army.

See class **XXVII.** B. B. d.

2448. a. 8. Portions of the fifth, sixth and seventh dorsal vertebræ and ribs of the right side. The spinous process of the sixth vertebra is fractured, and the fifth rib is chipped just anteriorly to its angle and on a line with the spinal fracture as though caused by a bullet passing from left to right. The fracture is partial, and the broken surfaces are necrosed. There has been some periosteal disturbance adjoining the point of injury.

Contributor and history unknown.

See class **III.** A. B. a.

For other illustrations, see 1954, **III.** A. B. a. 9; 1600, **III.** A. B. a. 16; 2014, **XIX.** A. B. a. 26.

b. Complete Fractures.

1210. The left clavicle transversely fractured without comminution directly in the middle. The missile, which is
b. 1. attached, was a conoidal ball, which entered near the third dorsal vertebra fracturing the corresponding rib at its angle, and was found after death encysted immediately beneath the fractured point of the clavicle. This is an interesting illustration of a very rare fracture.

Sergeant S. A., "F," 125th Pennsylvania: Chancellorsville, 3d May; admitted hospital, Washington, 9th; died, 20th May, 1863.

Contributed by Acting Assistant Surgeon B. F. Craig.

See 4627, **XXVI.** A. 1, 39.

See class **XXVI.** B. B. d.

2984. The left clavicle, much comminuted in the middle third by a conoidal ball, which lodged in the apex of the lung.
b. 2. There is no attempt at repair.

Corporal T. W. J., "B," 8th Delaware, 49: probably Petersburg, 1st April; admitted hospital, Washington, 6th; died from pyæmia, 17th April, 1865.

Contributed by Assistant Surgeon W. F. Norris, U. S. Army.

640. The sternal two-thirds of the left clavicle. The outer third was comminuted by a ball which entered near the
b. 3. inferior angle of the scapula, passed upward fracturing its neck, and, after shattering the clavicle, carried away the transverse processes of the fourth and fifth cervical vertebræ, and finally lodged behind the symphysis of the inferior maxilla.

Sergeant J. H. R., "H," 11th Pennsylvania Reserves: Fredericksburg, 13th December; admitted hospital, Washington, 16th December, 1862; died, January, 1863.

Contributed by Surgeon O. A. Judson, U. S. Vols.

See 901, **III.** A. B. a. 19; 641, **V.** A. B. b. 6.

309. The inner two-thirds of the right clavicle after an oblique comminuted fracture at the junction of the outer thirds.
b. 4. A bony fragment, with the inner portion ensheathed with callus and the outer extremity necrosed, projects upward and outward from the outer border of the bone. On the outer portion of the sternal concavity there is a thin deposit of callus.

Contributed by Surgeon John T. Hodgen, U. S. Vols.

3737. The left clavicle obliquely perforated at its sternal articulation by a conoidal ball. The missile entered from the
b. 5. right and passing obliquely backward embedded itself in the lung, where it was found after death. The wound in the bone is surrounded by an osseous band, and its interior is necrosed.

Private A. J., "H," 12th New York, 33: Deep Bottom, Va., 16th August; died in hospital, Beverly, N. J., 21st December, 1864.

Contributed by Assistant Surgeon C. Wagner, U. S. Army.

See 3736, **XIX.** A. B. a. 29.

3460. The left clavicle comminuted at its outer third. The specimen is in two portions, and shows no attempt whatever
b. 6. at repair.

Private C. R., "F," 8th New York Heavy Artillery, 39: Wilderness, 5th May; died, exhausted, Washington, 21st June, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

See 2636, **XIX.** A. B. a. 6.

2194. The left clavicle, fractured in its outer third and partially united with shortening and posterior displacement. The
b. 7. internal portion of the fracture is necrosed.

Sergeant L. A. J. B., "I," 27th Mississippi, (Rebel,) 22: admitted from another hospital, fracture apparently healed, Nashville, 27th January; died exhausted, after gangrene, 17th February, 1864.

Contributed by Acting Assistant Surgeon R. T. Higgins.

1680. The left scapula, grooved just below the glenoid cavity by a large conoidal pistol ball which entered from the
b. 8. rear and passed to the front around the chest, penetrated the left lung and the superior lobe of the right lung, and was extracted between the third and fourth ribs one inch to the right of the sternum. A fissure of one inch and a half, not connected with the direct wound of the ball, exists in the lower wing of the bone.

Corporal S. A. C., "E," 1st U. S. Cavalry: Brandy Station, Va., 1st August; admitted hospital, Washington, 2d; died, after compression of the lungs by blood, 9th August, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

3638. The left scapula, with the coracoid process fractured at its junction with the neck. There is no effort at repair.
b. 9. A fracture which exists at the inferior angle probably occurred in the preparation of the specimen.

Private G. W., "E," 96th New York, 24: Cedar Creek, 19th October; admitted hospital, Philadelphia, 26th; died, exhausted, with pyæmic symptoms, 30th October, 1864.

Contributed by Acting Assistant Surgeon A. A. Smith.

See 3722, **VI.** A. B. b. 33.

579. The lowest fourth of the right scapula, which is perforated by a conoidal ball near the inferior angle. The bone is
b. 10. neither comminuted nor fissured. The edges of the orifice are slightly necrosed.

Private S. B., "A," 83d New York: Fredericksburg, 13th December; admitted hospital, Washington, 26th December, 1862; pleuro-pneumonia of the left side occurred, 18th January; died, 21st January, 1863.

Contributed by Surgeon H. Bryant, U. S. Vols.

See 846, **XIX.** A. B. a. 32; 515, **XIX.** A. B. a. 33.

2792. The right scapula fractured on the anterior border near the inferior angle, by a ball which entered the front over
b. 11. the third rib and passed round the chest escaping as seen in the specimen. The fractured edges are necrosed, and both surfaces of the lower portion of the scapula are coated with an osseous layer.

Sergeant F. H. H., "A," 121st Pennsylvania: Gettysburg, 1st July; admitted hospital, Philadelphia, 13th July; died, exhausted, with pyæmic symptoms, 2d August, 1863.

Contributed by Acting Assistant Surgeon Wm. V. Keating.

2186. The right scapula, with the posterior portion of the spine carried away by a bullet which appears to have passed
b. 12. from below upward. Two slight fissures exist in the lower plate. The whole posterior surface of the bone shows marks of periosteal disturbance.

Private N. O., "D," 1st Florida Cavalry (Rebel): Mission Ridge, 25th November; admitted hospital, Nashville, 7th December, 1863; died, from double pneumonia, 27th January, 1864.

Contributed by Acting Assistant Surgeon Preston Peter.

832. The right scapula badly fractured by a bullet which entered the superior wing at the middle of its upper border,
b. 13. shattered the spine at its junction with the dorsum, and, passing on, fractured the fourth rib and lodged against the vertebræ.

Private C. K., "H," 28th Pennsylvania: Antietam, 17th September; died, Frederick, 1st December, 1862.

Contributed by Assistant Surgeon J. Bernard Brinton, U. S. Army.

3089. The left scapula. A bullet struck the posterior border two inches above the inferior angle and passed inward,
b. 14. lodging in the spinal canal. The specimen is comminuted and transversely grooved at the point of impact, and a fracture extends across the bone, the lower fragment of which is bent inward. Periosteal inflammation has been induced on both sides of the larger fragment.

Corporal G. W. M., "B," 53d Pennsylvania, 19: Cold Harbor, 3d June; admitted hospital, Washington, 7th; died, paraplegic, with pneumonia, 19th June, 1864.

Contributed by Surgeon R. B. Bontecou, U. S. Vols.

See 3030, **III.** A. B. b. 17.

1211. The left scapula fractured in the head and dorsum by a conoidal ball which, split in two pieces, lies below the
b. 15. spine. The ball has passed through the bone carrying away a square inch of its surface. The line of fracture crosses the glenoid cavity and runs backward and downward to the posterior border of the bone. The tip of the coracoid process is carious.

Private J. B., "H," 7th Massachusetts, 34: Chancellorsville, 3d May; admitted hospital, Washington, 9th; died, from secondary hæmorrhage and exhaustion, 25th May, 1863.

Contributed by Surgeon O. A. Judson, U. S. Vols.

See class **XXVII.** B. B. d.

3585. The left scapula fractured by a bullet which first impinged against its anterior border just below the glenoid
b. 16. cavity and then struck the spine at the junction of the acromion and was extracted from the supra-spinous fossa. A deep longitudinal fracture nearly separates the spine from the dorsum of the bone. The coracoid process is nearly split off, and the whole inferior plate is occupied with fissures, none of which directly communicate with the original fracture but which together nearly destroy the bone. Another bullet entered below the axilla and escaped at the distal extremity of the scapula, and still another entered the left thorax between the ninth and tenth ribs.

Private W. A. S, "B," 13th Indiana, 27: Petersburg, 30th July; admitted hospital, Washington, 3d August; died, from pleuro-pneumonia, 7th August, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

286. The right scapula perforated by gunshot just below the spine in its middle third. A transverse fracture extends
b. 17. across the dorsum parallel with the spine. From this a vertical fracture separates the superior anterior fourth from the remainder of the bone. A longitudinal fracture occupies the anterior border for one inch below the chief injury, and a fissure of similar length extends parallel to the posterior border. There are traces of periosteal disturbance.

Contributed by Surgeon John T. Hodgen, U. S. Vols.

699. Both scapulæ fractured by the same missile. A conoidal bullet entered the right shoulder over the head of the
b. 18. humerus, of which it split off a fragment, shattered the neck and fractured the acromion and coracoid processes, destroyed the supra-spinous and fissured the infra-spinous fossæ, carried fragments of bone into the lung, fractured the spinous and transverse processes of the second and third dorsal vertebræ, passed through the left scapula at the base of its spine, and escaped through the deltoid. Periosteal inflammation has occurred on both surfaces at each seat of injury.

Private J. S. L., "G," 18th Massachusetts, 18: date of wound not reported; died, Philadelphia, 17th September, 1862.

Contributed by Surgeon P. B. Goddard, U. S. Vols.

See 843, **III.** A. B. a. 4.

3376. The first rib of the right side transversely fractured at its middle by a conoidal ball. The under surface is
b. 19. somewhat splintered. The anterior portion was pressed into the apex of the lung, and a spicula from the posterior perforated the subclavian artery. There are traces of periosteal disturbance on both surfaces of the anterior portion.

Private J. J. F., "A," 122d New York: Winchester, 19th September; died, from secondary hæmorrhage, 5th October, 1864.

Contributed by Acting Assistant Surgeon M. Leon Hammond.

3291. The eleventh rib of the right side perforated in its anterior third by a small missile which passed transversely
b. 20. through the anterior portion of the body of the third lumbar vertebra. The greater splintering of the inner surface is well marked in this specimen.

This specimen properly belongs to class **IV.** A. A. b.

Private W. B., "I," 6th Pennsylvania Cavalry: Brandy Station, Va., 1st August, 1863; died while being carried to hospital, Washington.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See 1647, **III.** A. A. a 1; 1646, **XX.** A. A. a. 4.

3843. The anterior third of the sixth rib of the left side fractured near the costal extremity by a conoidal ball which
b. 21. lodged in the lung. The fractured extremities are necrosed, and a slight ossific deposit has occurred on the internal surface.

Private W. P. B., "I," 8th New York Cavalry, 36: wounded at the same time in the right leg, which was amputated, Funkstown, Md., 5th July; admitted hospital, Frederick, 20th; died, 22d July, 1863.

Contributed by Acting Assistant Surgeon Skinner.

2785. A part of the third rib on the right side fractured about three inches from its sternal extremity by a conoidal
b. 22. ball which had passed through the lowest third of the right radius, struck the breast one inch below the right clavicle and two inches from its sternal extremity, and was cut out near the apex of the right scapula. No inconvenience in the thoracic wound existed for six weeks. There is loss of substance on the outer surface with necrosis of the fractured extremities, but on the internal surface there is a slight new deposit.

Private H. C. W., "G," 3d Maine, 26: Gettysburg, 2d July; admitted hospital, Philadelphia, 13th; commenced sloughing, 30th July; complained of pain suddenly, 14th August; died, 16th August, 1863. There was no repair in the forearm.

Contributed by Acting Assistant Surgeon Wm. V. Keating.

2423. A portion of the right rib obliquely fractured on its external surface, with the loss of two inches from its
b. 23. internal surface, which was driven into and embedded in the left lung. Slight periosteal disturbance may be traced on the internal surface; but there is no osseous deposit near the fracture, the immediate extremities of which are necrosed.

Private H. H., "B," 1st Maine Heavy Artillery: Wilderness, 6th May; died, Washington, 3d June, 1864.

Contributed by Assistant Surgeon J. C. McKee, U. S. Army.

See 2424, **XIX.** A. B. a. 20; 2425, **XX.** A. B. a. 7.

877. The anterior half of one of the ribs from the right side, fractured near its costal extremity. The fragments have
b. 24. consolidated, chiefly by cartilaginous formation.

Contributed by Acting Assistant Surgeon Joseph Leidy.

1073. b. 25. The superior portion of the sternum, shattered near its articulation with the second and third ribs by a conoidal ball which entered two inches to the right of the median line and, battered, lodged beneath the fractured bone.

Private P. H. B., "C," 147th Pennsylvania: Chancellorsville, 2d May; admitted hospital, Washington, 8th; died, with symptoms of pneumonia and exhaustion following hæmorrhage, 9th May, 1863. *See figure* 38.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See class **XXVII.** B. B. d.

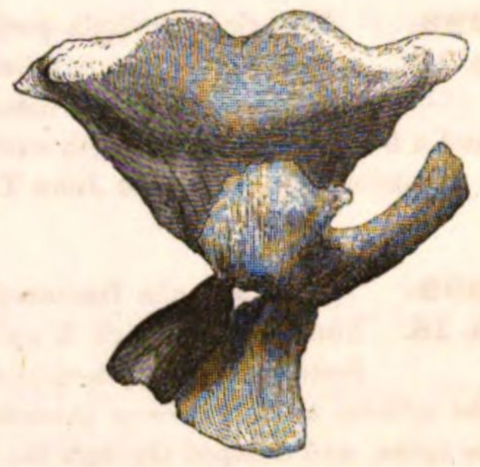

FIG. 38. Sternum fractured by a ball, which is attached. *Spec.* 1073.

34. b. 26. The sternum transversely fractured at the articulation of the third and fourth ribs by a round bullet, which did not penetrate the chest. Much depression exists with the injury, and the fractured edges are necrosed.

Private J. E. A., "I," 32d New York: before Richmond, 25th June; died, in Washington, 1st August, 1862.

Contributed by Assistant Surgeon C. A. McCall, U. S. Army.

2914. b. 27. The upper portion of the sternum fractured by a shell wound and necrosed. The bone is fractured longitudinally and obliquely with some displacement. It is carious within to a considerable extent, and on the internal surface is partially covered with a plate of new deposit.

Private H. B., "B," 27th Michigan, 21: admitted hospital, Washington, 16th May; died, from pleurisy, 15th July, 1864.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

178. b. 28. The left scapula, showing gunshot fracture of its head and dorsum, with two fragments of conoidal ball in the body of the bone just below the spine. A complete fracture with much loss of substance extends across the dorsum parallel to the spine and just below it. A layer of thin, friable, yellowish exudation covers the posterior part of the internal surface of the bone. *See figure* 39.

Private W. F., "F," 18th Massachusetts, 30: Second Bull Run, 30th August; admitted hospital, Georgetown, 31st August; died from pyæmia, 25th September, 1862.

Contributed by Acting Assistant Surgeon W. H. Butler.

See 4628, **XXVI.** A. 2, 86.

See class **XXVII.** B. B. d.

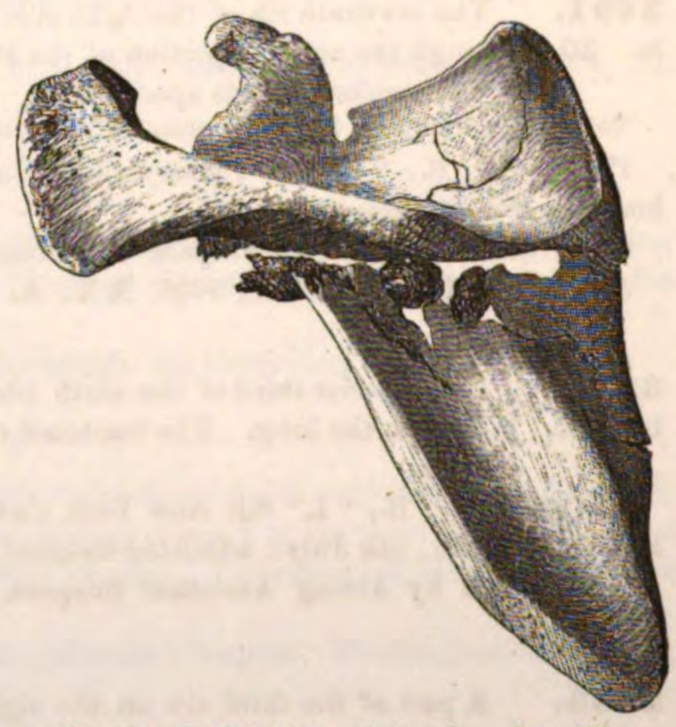

FIG. 39. Badly fractured scapula. *Spec.* 178.

636. b. 29. Portions of the left scapula and clavicle. A conoidal ball perforated the spine just below its crest and three inches from the tip of the acromion, chipped the clavicle at the insertion of the conoid ligament, and rested at the bifurcation of the trachea.

Private W. H. C, "H," 31st Georgia (Rebel): Fredericksburg, 13th December, 1862; died exhausted, Washington, 8th January, 1863.

Contributed by Surgeon O. A. Judson, U. S. Vols.

See class **XXVII.** B. B. d.

3381. b. 30. The right clavicle, with its acromial end chipped off and the acromion fractured at its junction with the spine. Corporal C. F., "D," 13th Iowa, 29: admitted Field Hospital, Rome, Ga., 12th July, 1864; died with phlebitis.

Contributed by Surgeon George F. French, U. S. Vols.

3650. b. 31. The left clavicle and scapula. The clavicle is fractured near its sternal extremity, and the scapula is perforated about the centre of its lower plate. The fractured extremities of the collar bone are necrosed and without union. The greater portion of each side of the lower plate of the scapula is covered with a thin deposit of new bone, while the immediate edges of the perforation are necrosed.

Private L. R., "D," 16th Pennsylvania Cavalry.

Contributed by Acting Assistant Surgeon A. A. Smith.

See 3634, **XVIII. II.** A. B. b. 3.

2183. b. 32. The left fourth and fifth ribs comminuted for two inches in their middle thirds, with no attempt at repair. Sergeant J. K., "A," 35th Illinois, 46: admitted hospital, Nashville, 3d December; died exhausted, 16th December, 1863.

Contributed by Acting Assistant Surgeon W. H. Matlock.

617. Portions of the last three ribs of the right side with the eleventh completely fractured by a tompion. The
b. 33. fragments are partially united by new bone, which entangles some necrosed portions.

Private G. M., "C," 13th New Jersey: shot by a comrade in the rear rank who neglected to remove his tompion, Antietam, 17th September; admitted hospital, Philadelphia, 26th September; died, 18th October, 1862.

Contributed by Acting Assistant Surgeon H. Hart.

See 616, **XIX.** A. B. a. 39.

See class **XXVII.** B′. B′.

2367. The seventh, eighth, ninth and tenth ribs of the left side. The ninth rib near its middle is obliquely fractured
b. 34. with comminution an inch and a half externally and two inches internally. The eighth rib is obliquely fractured directly above it, with little comminution externally, and with a section embracing its entire width and one and a half inches in length detached internally. The bullet penetrated the lung. Traces of periosteal disturbance are discernable on the internal surfaces of the four ribs, and externally on the two that are fractured.

Private J. H., "H," 49th Pennsylvania, 28; probably Wilderness, 5th May; admitted hospital, Baltimore, 15th: died, after secondary hæmorrhage, 23d May, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles.

845. Portions of the eleventh and twelfth ribs of the right side, completely fractured
b. 35. and surrounded at the points of solution with large irregular formations of callus.
See figure 40.

Private S B., "A," 9th New York State Militia (83d Volunteers): Fredericksburg, 13th December; admitted hospital, Washington, 22d December, 1862; died with empyema, 21st January, 1863.

Contributed by Surgeon H. Bryant, U. S. Vols.

See 4627, **XXVI.** A. 1, 30.

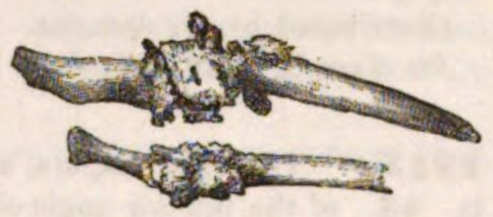

FIG. 40. Attempted repair of fractured ribs. *Spec.* 845.

4092. The second, third, fourth, fifth and sixth dorsal vertebræ with portions of the corresponding ribs on the left side
b. 36. A bullet passed through the spine of the right scapula, fractured the spinous and left transverse processes of the third and fourth vertebræ, and shattered the fourth and fifth ribs posteriorly to their angles, destroying the lung substance and escaping through the trapezius.

Private C. B., "B," 11th Pennsylvania, 50: Hatcher's Run. Va., 2d April; admitted hospital, Washington, 10th; died, 28th April, 1865.

Contributed by Acting Assistant Surgeon C. H. Bowen.

See clas es **III.** A. B. a.; **XIX.** A. B. a.

3640. The sternum and the anterior terminations of several ribs of the right side. The costal extremity of the third is
b. 37. fractured by a conoidal ball which entered at that point and escaped from the axilla.

Corporal W. A. B., "D," 59th Massachusetts, 27: Petersburg, 15th July; admitted hospital, Philadelphia, 26th July; died, from secondary hæmorrhage, 14th August, 1864.

Contributed by Acting Assistant Surgeon A. A. Smith.

2809. The costal cartilages and anterior portions of the fifth, sixth, seventh, eighth and ninth ribs. The seventh and
b. 38. eighth ribs are fractured at their extremities and are necrosed.

Private C. H. S., "E," 2d Michigan Cavalry, 17.

Contributed by Surgeon N. R. Mosely, U. S. Vols.

2925. The seventh cervical and first three dorsal vertebræ, with the corresponding ribs and part of the sternum. The
b. 39. second left rib was struck at its costal extremity by a bullet, which, passing transversely, tore away the cartilage, comminuted the sternum, and separated the cartilaginous attachment of the second right rib. The sternum is extensively necrosed, especially on its internal surface, the second portion of which shows traces of periosteal disturbance. The wound was interesting in exposing to view the pulsations of the heart and aorta.

Private A. C., "A," 2d New York Heavy Artillery, 21: Petersburg, 29th June; admitted hospital, Washington, 5th July; secondary hæmorrhage from the internal mammary, which was ligated by Surgeon O. A. Judson, U. S. Vols., 13th; died, 19th July, 1864.

Contributed by the operator.

3633. The upper third of the sternum and parts of the clavicle and first rib on the left side, and of the clavicle and first
b. 40. two ribs on the right side. A conoidal ball, at short range, after fracturing the head of the left humerus, passed transversely through the sternum from left to right, badly tearing it up, fracturing the first rib on the right side and lodging in the lung.

Private J. V., "D," 14th New Jersey, 39: accidentally wounded, Winchester, 20th October; died from pyæmia, 31st October, 1864.

Contributed by Acting Assistant Surgeon A. A. Smith.

2391. The scapula and parts of the first six ribs of the right side. A bullet has perforated the scapula just below the
b. 41. spine and near its posterior border, carrying away about one square inch of its surface and depressing twice as great an area, and destroying the spinal extremities of the fifth and sixth ribs. It then badly fractured the third, fourth and fifth dorsal vertebræ and the fourth rib of the right side. The coracoid and acromial extremities and the glenoid cavity have been the seat of necrosed action, which appears to have been arrested before death.

Private N. P., "G," 124th New York, 18: died, 17th May, 1864.

Contributed by Acting Assistant Surgeon A. Ansell.

See 2330, **III.** A. A. b. 8.

2124. The lower third of the right scapula and the adjoining portions of the seventh, eighth, ninth and tenth ribs.
b. 42. The ball struck four inches below the axilla, and passing backward escaped at the inferior angle of the scapula. The specimen shows the extremity of the scapula carried away, the tenth rib comminuted, and the ninth contused. The fractured extremities are necrosed. The thoracic surfaces show free deposits of osseous matter which agglutinate them. The specimen is also interesting as a memorial of the ligation of the intercostal artery.

Private F. W., "A," 33d Ohio: Chickamauga, 20th September; remained on the field ten days; then admitted hospital, Murfreesboro'; intercostal ligated for secondary hæmorrhage, by Surgeon I. Moses, U. S. Vols., 5th October: "died of emphysema of the same side," late in October, 1863.

Contributed by the operator.

See class **XVIII. II.** A. B. b.

1215. The right scapula, upper third of the humerus, and sections of the fifth, seventh and eighth ribs. Two inches
b. 43. of the inferior angle of the scapula are separated. The inner part of the humerus is carried away, and fissures run two inches down the shaft, making the fracture complete. The joint surfaces are normal. Oblique fractures of the three ribs exist near their centres. There is no attempt at repair.

Private T. L., "K," 1st Massachusetts, 42: Second Fredericksburg, 3d May; admitted hospital, Washington, 9th; died, 11th May, 1863.

Contributed by Surgeon O. A. Judson, U. S. Vols.

See class **VI.** A. B. b.

720. The right scapula and sternal half of the clavicle. A bullet has carried away the distal extremity of the clavicle,
b. 44. and passing backward and downward fractured the scapula at the junction of the spine and dorsum, shattering both. The points of immediate perforation are necrosed, and the adjacent bone has slight deposit of new matter. The head of the humerus, which is attached, is eroded, which was not suspected in life.

Private W. A. F., "G," 16th Maine: Fredericksburg, 13th December; admitted hospital, Washington, 18th December, 1862; died, 13th January, 1863.

Contributed by Assistant Surgeon Alex. Ingram, U. S. Army.

1304. The clavicle, scapula and first and second ribs of the right side. A bullet entered near its sternal extremity,
b. 45. comminuted the clavicle, fractured the first and second ribs, and escaped through the scapula just below the spine, which is greatly shattered. The subclavian artery was not opened, although the inner coats were much lacerated and the vein was torn.

Sergeant J. M. W., "I," 53d Massachusetts, 45: Port Hudson, La., 27th May; admitted hospital, New Orleans, 29th May; died, 7th June, 1863.

Contributed by Assistant Surgeon P. S. Conner, U. S. Army.

See 1305, **XXII.** A. B. a. 2.

245. The clavicle, third, fourth, fifth and sixth ribs, and scapula of the left side, all fractured by a conoidal ball.
b. 46. The clavicle is fractured nearly transversely, with little comminution, at the junction of the outer thirds. Callus has been moderately deposited without union. The third, fourth and fifth ribs have been fractured near their angles, and are bound together by new bone, which has irregularly repaired the injury and attached them to the sixth. The scapula is perforated near the posterior border and below the spine, with the loss of about one square inch of substance. A fissure two inches in length extends inferiorly from the point of perforation, another of three inches occupies the spine in its length, and two smaller ones cross the upper plate of the bone. A small amount of callus is deposited about the perforation.

Private E. L., 87th New York: Second Bull Run, 29th August; admitted hospital, Washington, 1st September; died from pneumonia, after exposure against orders, 3d November, 1862.

Contributed by Surgeon A. Wynkoop, U. S. Vols.

For other illustrations, see 3524, **III.** A. B. a. 5; 679, **III.** A. B. a. 8; 3851, **III.** A. B. a. 20; 3790, **V.** A. B. b. 14; 2117, **XIX.** A. B. a. 5; 2636, **XIX.** A. B. a. 6; 1722, **XIX.** A. B. a. 8; 826, **XIX.** A. B. a. 11; 2707, **XIX.** A. B. a. 16; 1315, **XIX.** A. B. a. 31; 1789, **XX.** A. B. a. 22.

c. After operations. { cy. Excisions. cz. Removal of fragments.

cy. Excisions.

3844. Three inches of the outer portion of the left clavicle in two fragments, removed by the chain saw after a shell
cy. 1. wound. The specimen is considerably necrosed. Attached is a tubular sequestrum two inches in length.

Sergeant J. H., "I," 9th New York State Militia: Antietam, 17th September; admitted hospital, Frederick, 23d September; specimen removed, 12th October; sequestrum came away, 12th December, 1862. Discharged the service.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

372. Three inches of the acromial end of the left clavicle excised for a comminuted fracture. The fragments of the
cy. 2. lower surface are chiefly wanting.

Operation performed by Acting Assistant Surgeon A. S. Green.

Contributed by Surgeon W. Varian, U. S. Vols.

3760. The superior portion of the sternum fractured, and a part of the left clavicle. The clavicle appears to have
cy. 3. suffered excision of its middle third. Necrosis has begun to invade the inferior portion of the fragment of the sternum, which had been crushed into the anterior mediastium.

Private J. B., "D," 57th Illinois, 20: admitted hospital, Nashville, 19th June; died, from secondary hæmorrhage from the internal mammary, 11th July, 1864.

Contributed by Acting Assistant Surgeon R. T. Higgins.

2294. The acromion and upper third of the spine of the left scapula and a conoidal ball.
cy. 4. Private G. R. M., "E," 124th Pennsylvania: Wilderness, 6th May; admitted hospital, Washington, 14th; bullet extracted and specimen excised, by Acting Assistant Surgeon Clark, 17th May; transferred to Philadelphia, doing well, 9th September, 1864.

Contributed by Surgeon O. A. Judson, U. S. Vols.

See class **XXVII.** B. b. d.

794. An excised portion of the acromion and the spine of the right scapula four inches in length. The spine had
cy. 5. been comminuted by a bullet, a part of which is attached. The acromial end of the specimen is honeycombed with necrosis.

Private J. P., "H," 14th Indiana, 24: Antietam, 17th September; admitted hospital, Frederick, 27th September; excised by Acting Assistant Surgeon W. W. Keen, jr., 14th October; the shoulder-joint opened by ulceration, 6th November; died from pleurisy, 15th November, 1862.

Contributed by the operator.

See 827, **IV.** A. B. cy. 6.

See class **XXVII.** B. B. d.

827. The right scapula, from which the entire spine has been excised after fracture by a conoidal ball. A fracture
cy. 6. with loss of substance extends from the supra-scapular notch downward parallel to the anterior border. New bony cribriform plates have been deposited on both surfaces. The upper third of the humerus is attached, to show the secondary disease to the articular surface.

Private J. P., "H," 14th Indiana, 24: Antietam, 17th September; spine and acromion excised, by Acting Assistant Surgeon W. W. Keen, jr., 14th October; died from pleurisy, 15th November, 1862.

Contributed by the operator.

See 794, **IV.** A. B. cy. 5.

1090. Nearly the whole of the infra-spinous portion of the left scapula and a
cy. 7. small portion of the glenoid fossa, removed by operation after fracture by a conoidal ball. The bullet struck midway between the inferior angle and the spine, shattering the bone and lodging in the glenoid cavity without injury to the humerus. The spine and superior fossa were left intact. *See figure* 41.

Private F. E. B., —— Connecticut, 51: Chancellorsville, 3d May; admitted hospital, Washington, 7th May, 1863; operation performed by Surgeon H. Bryant, U. S. Vols.; discharged, with useful forearm, March, 1864.

Contributed by the operator.

See class **V.** A. B. c.

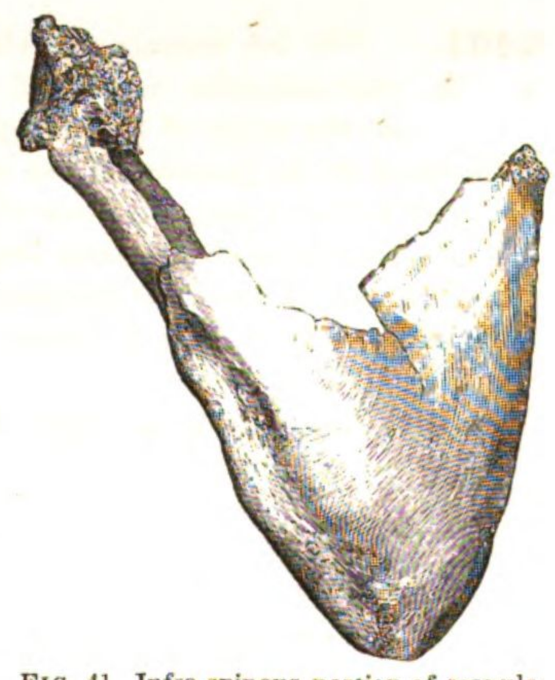

FIG. 41. Infra-spinous portion of scapula excised. *Spec.* 1090.

cz. Removal of Fragments.

137. The right clavicle longitudinally fractured through the middle and outer thirds. A number of fragments have
cz. 1. been removed from the bone at the sternal convexity. No union whatever has occurred, but the sternal extremity of the fracture is slightly necrosed The bone is rather above the average length.

Unknown: Antietam, 17th September; subclavian artery torn; died from secondary hæmorrhage Keedysville, 19th September, 1862.

Contributed by Assistant Surgeon S. A. Storrow, U. S. Army.

56. A fragment of rib completely fractured. A few minute spiculæ appear to have been removed. The fractured
cz. 2. extremities are necrosed and there is no attempt at repair.

Contributed by Acting Assistant Surgeon D. W. Cheever.

B. Injuries not caused by Gunshot.

A. Recent Conditions. { a. Contusions and partial fractures. b. Complete fractures c. After operations. { cy. Excisions. cz. Removal of fragments. d. Dislocations.

b. Complete Fractures.

1631. The left scapula transversely fractured parallel with the spine and about two inches below it. The right
b. 1. humerus and ulna and both radii were comminuted; the clavicle and all the ribs of the left side except the twelfth, and all of the right side except the first, second and twelfth were fractured; and the left lung was lacerated.

J. G., employé of Subsistence Department, 36: run over by city passenger railroad car, and died in one hour, Washington, 10th April, 1863.

Contributed by Acting Assistant Surgeon John E. Smith.

See 1786, **VI.** B. A. b. 1; 1784, **VIII.** B A. b. 1.

3201. The left scapula and clavicle after fracture by a rail car. The scapula presents a fracture commencing at the
b. 2. supra-scapular notch, and passing downward and backward for three inches following the line of the lower ridge on the venter of the bone parallel to the anterior border and terminating about one-half inch from it. The clavicle is fractured at the junction of the middle and outer thirds, the line of fracture being oblique from above downwards, and enclosing a small triangular piece of bone on the lower surface.

V. K., employé of Subsistence Department: admitted hospital, Washington, 20th July; died, 23d July, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See 1639, **VI.** B. A. b. 2; 1640, **XVIII. II.** B. B. a. 1.

For other illustrations, see 2977, **XI.** B. A. b. 1; 2991, **XIII.** B. A. c. 2.

B. Secondary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. After operations.
  - cy. Excisions.
  - cz. Removal of fragments.
- d. Dislocations.

b. Complete Fractures.

4332. A sequestrum, partially tubular and conoidal, three inches in length and separated from the sternal end of the
b. 1. right clavicle two years after injury. The complete circumference of the bone is preserved only, and there irregularly, around the sternal extremity, and occupies about one-third of the length of the specimen. The remaining portion is spindled out into a ragged extremity.

Private J. Q., "E," 9th New York cavalry: the clavicle was fractured by his horse, shot in a charge, falling on him, Winchester, 8th June, 1862; treated for and recovered from general emphysema in a Washington hospital, and several loose spiculæ removed while there; admitted hospital, New York, 21st October, 1863; specimen removed by Acting Assistant Surgeon Merritt, 21st June; invaded by hospital gangrene, 9th July; recovered under the influence of bromine, 26th July; discharged the service with a useful arm, new bone having been largely deposited, 1st October, 1864.

Contributed by Acting Assistant Surgeon G. F. Shrady.

See 308, **XXV.** A. A. b. 7.

C. Diseases.

415. Two necrosed fragments one and one and a half inches in length, respectively, from the acromion and spine of the
C. 1. scapula, removed by excision for ulceration following an abscess not induced by injury. Four very minute fragments are attached.

Private M. O., "D," 8th U. S. Infantry, 20: operation performed in Baltimore.

Contributed by Surgeon L. Quick, U. S. Vols.

V. INJURIES AND DISEASES OF THE SHOULDER JOINT.

- **A.** Gunshot Injuries.
  - **A.** Primary.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Excisions.
    - d. Amputations.
    - e. Other operations.
  - **B.** Secondary.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Excisions.
    - d. Amputations.
    - e. Other operations.
    - f. Sequestra and exfoliations.
- **B.** Injuries not caused by Gunshot.
  - **A.** Primary.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Dislocations.
    - d. Excisions.
    - e. Amputations.
    - f. Other operations.
  - **B.** Secondary.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Dislocations.
    - d. Excisions.
    - e. Amputations.
    - f. Other operations.
    - g. Sequestra and exfoliations.
- **C.** Diseases.

V. SHOULDER JOINT.

A. Gunshot Injuries.

A. Primary. { a. Contusions and partial fractures. b. Complete fractures. c. Excisions. d. Amputations. e. Other operations.

b. Complete Fractures.

2689. b. 1. The upper two and a half inches of the left humerus, with a vertical fracture through the head and three longitudinal fractures of the shaft. The epiphysis is detached. A conoidal ball, which appears to have struck the anatomical neck posteriorly, is mounted with the specimen.

Contributor and history unknown.

See class **XXVII.** B b. d.

2986. b. 2. The upper portion of the left humerus, with a conoidal ball lodged in the head at the extremity of the bicipital groove. Three slight fissures radiate from the seat of injury, at which the comminution is very trivial.

Contributor and history unknown.

See class **XXVII.** B. b. d.

4176. b. 3. The upper portion of the left humerus perforated directly through the head and surgical neck. A fair example of the shattering consequent upon such wounds.

Received from the Ninth Corps Field Hospital.

3705. b. 4. The upper half of the right humerus. A canister shot, which lodged beneath the scapula, struck the surgical neck and carried away its outer half. The line of fracture extends four inches down the inner side of the shaft. A vertical fracture extends through the head between the tuberosities.

Private A. C., "A," 55th Massachusetts (colored): Grahamsville, S. C., 30th November; died, Beaufort, S. C., 6th December, 1864.

Contributed by Surgeon John Trenor, jr., U. S. Vols.

c. Excisions.

1377. c. 1. A section one-third of an inch in thickness, excised from the outer portion of the head of the left humerus for fracture. A portion of the conoidal ball is attached. A section of the acromion which was made at the same time has not been preserved.

Private H., "K," 4th U. S. Infantry: Gettysburg, 2d July, 1863; excised by Assistant Surgeon B. Howard, U. S. Army.

Contributed by the operator.

See class **XXVII.** B. b. d.

4278. c. 2. The head of the humerus, in a number of small fragments, excised at the surgical neck. A card photograph, showing the appearance of the arm after recovery, stands with the specimen.

Private C. R., "H," 90th Pennsylvania, 19: Spottsylvania, Va., 10th May; admitted hospital, and excised by Assistant Surgeon W. Thomson, U. S. Army, Washington, 14th May, 1864. Recovered with "a very useful arm."

Contributed by Assistant Surgeon W. F. Norris, U. S. Army.

See 4628, **XXVI.** A. 2, 66.

2838. c. 3. Portions of right scapula and humerus, from a subject on whom excision of the head of the humerus had been performed in the field. The wound was gangrenous at the time of death, and the specimen shows no reparative effort.

Corporal H. D., "K," 106th Pennsylvania, 40: wounded and excised before Petersburg, 18th June; admitted hospital, Washington, 30th June; died, 14th July, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

See class **V.** A. b. c.

3386. The head of the left humerus excised through the surgical neck. A conoidal ball is impacted in the cancellated
c. 4. structure of the epiphysis, parallel with the long diameter of the bone. No fissure passes beyond the line of excision.
Private P. B., "D," 34th Massachusetts: excised by Surgeon J. Boone, 1st Maryland Potomac Home Brigade, 23d July; died from diarrhœa, 4th August, 1864.
Contributed by the operator.
See class **XXVII.** B. B. d.

3798. The head and one inch of the shaft of the left humerus, excised for destruction of the anterior third of the head.
c. 5. Sergeant W. L., "G," 25th New York Cavalry, 35: Cedar Creek, Va., 12th November; excised, Winchester, 14th November, 1864; discharged the service, 20th June, 1865.
Contributed by Assistant Surgeon E. B. Nims, 1st Vermont Cavalry.

259. The head of the left humerus with a splinter of the shaft two inches in length, supposed to have been excised.
c. 6. The bone is shattered at the surgical neck, and the head split into two lateral halves by a fracture extending directly through from the bicipital groove.
Contributed by Surgeon J. H. Brinton, U. S. Vols.

3802. The head of the right humerus, excised at the surgical neck for a fracture of the external portion of the head
c. 7. and greater tuberosity.
Lieutenant Colonel W. N. L., 89th New York, 23: Second Fair Oaks, 27th October; admitted hospital and excision performed, by Surgeon D. G. Rush, 101st Pennsylvania, Fort Monroe, 29th October, 1864. Recovered.
Contributed by the operator.

3954. The head and one and a half inches of the shaft of the left humerus, excised. The surgical neck is shattered.
c. 8. The eroded appearance the specimen presents is due to the mode of its preparation.
Private S. C., "G," 106th New York, 19: probably Monocacy, and admitted hospital, Frederick, 9th July; excised by Assistant Surgeon R. F. Weir, U. S. Army, 11th July, 1864. Recovered well.
Contributed by the operator.
See 4629, **XXVI.** A. 3, 123.

3505. The head and one and a half inches of the right humerus, presumed to have been excised. The region adjoining
c. 9. the greater tuberosity is fractured.
Contributed by Surgeon Robert William Pounds.

2647. A longitudinal half of the head and two inches of the shaft of the left humerus, utterly shattered and probably
c. 10. excised.
Received, without history, from Fredericksburg.

1748. The head and two inches of the shaft of the right humerus, removed by excision. The epiphysis is entirely
c. 11. uninjured, but the shaft is splintered into many fragments by a conoidal ball.
Sergeant J. F., "K," 17th Indiana: Liberty Gap, Ga., 25th June; admitted hospital, Murfreesboro', 26th; excised by Surgeon I. Moses, U. S. Vols., 27th; died, 28th June, 1863
Contributed by the operator.

1431. Excised head and two inches of the shaft of the left humerus. The whole specimen is much shattered.
c. 12. Contributed by Surgeons Cantwell and Kibbee, Eleventh Army Corps, after Gettysburg.

2044. The head and two inches of the shaft of the right humerus, excised for a complete oblique fracture through the
c. 13. surgical neck by a conoidal ball. The articular surface is slightly involved.
Corporal J. H. G., "F," 108th New York, 22: Morton's Ford, Va., 6th February; excised by Surgeon J. Dwinelle, 106th Pennsylvania, 9th February; discharged, 26th September, 1864.
Contributed by the operator,

2516. Excised head and two inches of the shaft of the left humerus. A conoidal ball has lodged just within the lesser
c. 14. tuberosity, breaking the head into several fragments, and splitting the shaft longitudinally by four lines of fracture, between two of which the laminated bone is wanting.
Received, without history, after Chancellorsville.
See 4629, **XXVI.** A. 3, 122.
See class **XXVII.** B. B. d.

2933. The excised head and two inches of the shaft of the left humerus. A conoidal ball, probably from a pistol or
c. 15. carbine, entered the bicipital groove at its superior extremity, passed out behind the greater tuberosity and lodged in the head of the scapula. There is comparatively little comminution.

Private ——, 6th New York Cavalry: Trevillian Station, Va., 11th July, 1864; excision performed the same day, by Assistant Surgeon J. W. Williams, U. S. Army. Fell into the hands of the enemy.

Contributed by the operator.

1721. The head and nearly two inches of the shaft of the left humerus, excised. A conoidal ball struck the bone
c. 16. between the tuberosities, shattering the surgical neck and lower part of the head and splitting off one-third of the articular surface.

Captain J. J. Y., 1st Maryland Potomac Home Brigade: accidentally wounded, Harper's Ferry, Va., 18th July; excised by Surgeon William Hayes, U. S. Vols., the same day; "sanguine of having a useful limb," 29th August, 1863.

Contributed by the operator.

1992. The left scapula and a portion of the humerus, after excision of the head and two inches of the shaft. The
c. 17. extremity of the acromion is broken off and the glenoid cavity is completely eroded. The superior extremity of the humerus presents a crown-shaped sequestrum, three-fourths of an inch in length, nearly detached from a moderate involucrum.

Sergeant J. C. S., "I," 2d Michigan, 21: admitted hospital with excision performed, Washington, 24th June; died, 26th August, 1864.

Contributed by Acting Assistant Surgeon S. Graham.

4161. Excised head and two inches of the shaft of the left humerus. The head has been fractured into three nearly
c. 18. equal portions, whereof the upper and anterior one is destroyed. An oblique fracture runs through the surgical neck.

Lieutenant J. M. P., "C," 211th Pennsylvania, 26: Petersburg, 2d April; excised by Surgeon W. O. McDonald, U. S. Vols., City Point, 5th April, 1865. Died.

Received from Ninth Corps Hospital.

3405. The head and two and a half inches of the shaft of the left humerus, excised. The epiphysis is not implicated,
c. 19. but the shaft is broken into many pieces.

Private G. H., "F," 10th Michigan Cavalry, 19: Flat Creek Bridge, Tenn., 24th August; admitted hospital, Knoxville, 25th; excised by Surgeon H. L. W. Burritt, U. S. Vols., 26th August, 1864; discharged the service, 2d May, 1865.

Contributed by the operator.

See 4629, **XXVI.** A. 3, 124.

315. The head and two and a half inches of the shaft of the right humerus, much shattered by the passage of a bullet
c. 20. through the anatomical neck and excised. The portion of the head remaining is split into three pieces, and the rest of the specimen is much broken up.

Contributed by Surgeon E. Bentley, U. S. Vols.

1376. The head and two and a half inches of the shaft of the left humerus, excised for perforation below the tuberosities
c. 21. by a conoidal ball which has shattered the surgical neck and, by fissure, involved the articular surface.

Private O'R., "B," 3d U. S. Infantry: Gettysburg, 2d July; excised by Assistant Surgeon B. Howard, U. S. Army, 3d July, 1863; discharged the service, 28th March, 1864.

Contributed by the operator.

2996. The head and two and a half inches of the shaft of the left humerus, excised. The lower portion of the head
c. 22. and the inner side of the surgical neck are carried away by gunshot. A fracture extends through the anatomical neck, completing the separation of the head.

Private J. S., "H," 4th Wisconsin, 26: Port Hudson, La., 27th May; admitted hospital, New Orleans, 30th May, 1863; excised by Acting Assistant Surgeon F. Hassenburgh; discharged, 1st February, 1864. "Is reported to have very good use of his arm."

Contributed by Assistant Surgeon P. S. Conner, U. S. Army.

1092. The head and two and a half inches of the shaft of the left humerus, excised for shattering of the surgical neck.
c. 23. Private N. R., "C," 27th Indiana: excised by Assistant Surgeon B. Howard, U. S. Army.

Contributed by the operator.

3277. The head and three and a half inches of the shaft of the right humerus, excised. The head is split into four
c. 24. unequal parts, and the fractures extend down the shaft nearly to the line of excision. The missile, a fragment of shell, struck the surgical neck at the bicipital groove, shattering it with much loss of substance.

Private G. O. C., "G," 37th Massachusetts, 20: Winchester, 19th September; excised by Assistant Surgeon Edward Curtis, U. S. Army, 22d September, 1864; discharged, 13th April, 1865.
Contributed by the operator.

4139. The head and two and a half inches of the shaft of the right humerus, excised. The head is broken into several
c. **25.** unequal fragments, and an oblique fracture extends down the shaft.
Private N. P., "H," 100th New York: Petersburg, 1st April; excised by Surgeon W. O. McDonald, U. S. Vols., 2d April, 1865.
Contributed by the operator.

2090. Three inches of the right acromion and the head and two inches of the shaft of the humerus. The bullet entered
c. **26.** from behind, fractured the scapula and completely shattered the epiphysis. The cancellated portion of bone appears excavated as though the missile had entered point first in the direction of the long axis of the bone.
Private R. I., 1st Tennessee, (Rebel,) 23: wounded and admitted hospital, Memphis, 8th August, 1863; excised by Acting Assistant Surgeon Allen Sterling, the same day.
Contributed by Assistant Surgeon J. C. G. Happersett, U. S. Army.

1767. The excised head and three inches of the shaft of the left humerus, thoroughly shattered by a conoidal ball at
c. **27.** close range. The missile passed directly through the head, badly comminuting it and the surgical neck and obliquely fracturing the shaft for three inches.
Lieutenant H. G. J., "G," 6th Maine, 18: Rappahannock Station, Va., 7th November; admitted hospital, Washington, 9th; excised, 10th November, 1863. The limb is shortened several inches, but is quite useful. A card photograph, illustrating the power of extension of the arm in July, 1865, stands with the specimen.
Contributed by Surgeon D. W. Bliss, U. S. Vols.
See 4629, **XXVI.** A. 3, 103.

2973. The head and three inches of the shaft of the right humerus, excised for comminution of the surgical neck by a
c. **28.** conoidal ball. The epiphysis is uninjured, but the comminution extends to nearly the line of excision.
Private M. C., "G," 57th Massachusetts, 30: Petersburg, 30th July; admitted hospital, Washington, 3d August; excised by Surgeon A. F. Sheldon, U. S. Vols., 4th August; died, 6th August, 1864.
Contributed by the operator.

1730. The excised head and three inches of the shaft of the left humerus. A conoidal ball has perforated and almost
c. **29.** entirely carried away the surgical neck. A number of fissures reach to but do not transcend the epiphyseal line. The fractures extend downward to the line of excision.
Sergeant T. McC., "F," 2d New York Cavalry, 38: Culpeper, 13th September; admitted hospital, Washington, 14th; excised by Surgeon D. W. Bliss, U. S. Vols., 17th; died, 23d September, 1863.
Contributed by the operator.

4148. The head and three inches of the shaft of the left humerus, excised for comminution of the surgical neck. The
c. **30.** epiphysis is uninjured.
Private R. M. G., "H," 1st Pennsylvania, 20: excised by Surgeon J. J. Comfort, 1st Pennsylvania; died from exhaustion, 11th July, 1864.
Contributed by the operator.

1715. The head and three inches of the shaft of the left humerus, perforated through the surgical neck by a conoidal
c. **31.** ball and excised The articular surface has sustained no loss of substance, but two fissures run through it, and another follows the line of the anatomical neck The remainder of the specimen is much comminuted.
Private M. F., "I," 8th Illinois Cavalry, 20: Jack's Shop, Va., 22d September; excised by Surgeon A. Hard, 8th Illinois Cavalry, Culpeper, Va., 23d September; furloughed, wound healed, 21st December, 1863; discharged the service, 6th April, 1864.
Contributed by the operator.
See 4629, **XXVI.** A. 3, 122.
See class **XXVII.** B. B. d.

2405. The head and three inches of the shaft of the right humerus, excised for a fracture of the surgical neck without
c. **32.** involving the head, after Chancellorsville.
Contributed by Surgeon J. H. Brinton, U. S. Vols.

2849. The head and three and a half inches of the shaft of the left humerus, excised for extreme comminution below
c. **33.** the surgical neck. The capsule of the joint was opened.
Private N. C., "C," 88th New York: Cold Harbor, 3d June, 1864; excised on the field by Surgeon Peter Emmet Hubon, 28th Massachusetts.
Contributed by the operator.

1555. The excised head of the right humerus, with three and a half inches of the outer side of the shaft obliquely
c. 34. fractured to a narrow extremity. The epiphysis is uninjured.
Contributed by Surgeons Cantwell and Kibbee, Eleventh Army Corps, after Gettysburg.

1086. The head and three and a half inches of the shaft of the right humerus, excised for comminution of the surgical
c. 35. neck. The articular surface is uninjured.
Private A. M. H., "H," 12th New Hampshire, 24: Chancellorsville, 3d May; admitted hospital, Washington, 6th; excised by Surgeon H. Bryant, U. S. Vols., 8th; died, from pleuro-pneumonia, 15th May, 1863.
Contributed by the operator.

2788. The head and three and a half inches of the shaft of the right humerus, excised for complete comminution by a
c. 36. musket ball.
Private G. H. G., "G," 9th Maine, 20: Petersburg, 30th June; excised the same day by Surgeon T. H Squire, 89th New York, at Eighteenth Corps Field Hospital; died, Point Lookout, Md., 9th August, 1864.
Contributed by the operator.

2260. The head and nearly four inches of the shaft of the left humerus, excised for a severe fracture through the
c. 37. surgical neck. A conoidal ball tore its way obliquely through the shaft, with extensive splitting but with little comminution, and lodged beneath the inner portion of the head. The articular surface of the bone was not injured, but the joint was opened.
Sergeant G. F. C., "L," 3d Indiana Cavalry, 27: near Knoxville, Tenn., 20th February; excised the same day by Surgeon A. M. Wilder, U. S. Vols.; died, 11th March, 1864.
Contributed by the operator.
See 4629, **XXVI.** A. 3, 126.

4208. The lower two thirds of the shaft of the left humerus, from which the head and upper third have been excised.
c. 38. The extremity is necrosed, with a line of demarcation forming.
Private T. M., "C," 25th New York: Petersburg, 1st April; excised shortly afterward; admitted hospital, Baltimore, 16th May; died, 17th May, 1864.
Contributed by Acting Assistant Surgeon L. Jewett.

1726. The head and four inches of the left humerus excised, for a fracture of the surgical neck which extended with
c. 39. comminution obliquely down the shaft, by Assistant Surgeon George M. McGill, U. S. Army.
Contributed by the operator.

1931. The head and four and a half inches of the shaft of the left humerus, excised for comminution of the upper
c. 40. third by a conoidal ball, which is attached, battered. The humerus was partially dislocated, but the epiphysis is uninjured. A card photograph, showing the appearance after recovery, stands with the specimen.
Private J. L. E., "L," 8th Illinois Cavalry: Muddy Run, near Rixeyville, Va , 8th November; excised on the field, the same day, by Surgeon E. W. H. Beck, 45th Indiana; admitted hospital, Washington, 10th November, 1863; discharged the service, 26th September, 1864. This man visited the Museum, 21st June, 1865, when the wound was perfectly closed, and he possessed good use of the forearm.
Contributed by the operator.
See 4628, **XXVI.** A. 2, 56.
See class **XXVII.** B. B. d.

3667. The lower half of the right humerus after a primary excision of the superior portion. The specimen presents
c. 41. two fissures extending an inch and a half below the line of excision, and shows that extremity necrosed on the anterior surface for two inches. Two sequestra are separating and a trivial deposit of callus is seen on the posterior border.
Private J. K., "H," 2d Pennsylvania Heavy Artillery, 18: conoidal ball, Petersburg, 5th July; excised in the field; admitted hospital, Philadelphia, 16th July; amputated for secondary hæmorrhage, 9th August; died, 11th August, 1864.
Received from hospital, Broad and Cherry streets, Philadelphia.
See class **V.** A. B. d.

3724. The lower half of the left humerus after excision of the remainder. Several longitudinal fissures exist in the
c. 42. upper extremity, which is chiefly necrosed. There has been a very slight effusion of callus.
Received, without history, from Beverly, N. J.

1738. The head and five and a half inches of the shaft of the right humerus, excised for fracture by shell. At the time of the operation the head of the bone seemed involved, which the specimen shows was not the case. The shaft is comminuted for four inches above the line of section. A fragment of elongated shell weighing nine and a half ounces, which was extracted at the time of the operation, is attached. A card photograph of the case, taken fifteen months after the operation, stands with the specimen. *See figures* 42 *and* 43.

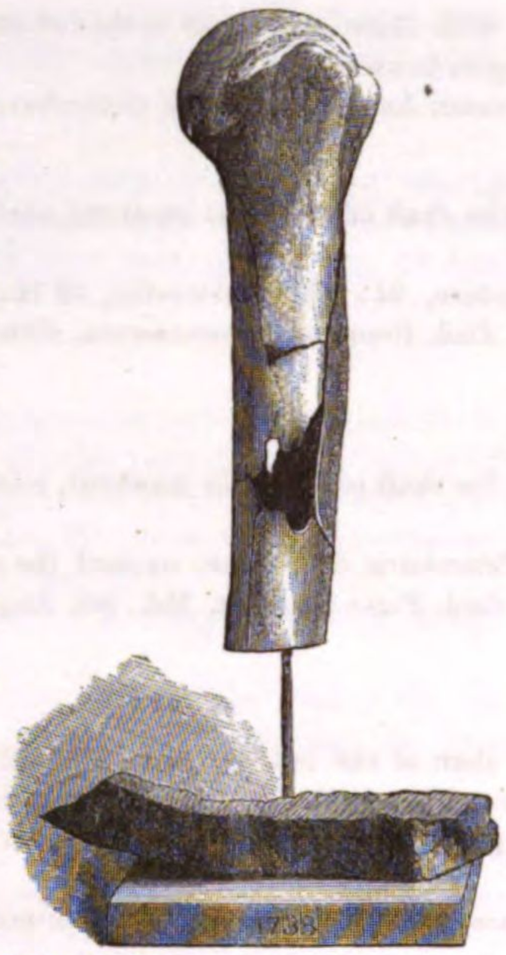

FIG. 42. Upper portion of humerus successfully excised. Fragment of shell taken from the wound. *Spec.* 1738.

FIG. 43. Appearance of patient fifteen months after excision of large portion of humerus. *Spec.* 1738.

Private J. F. R., "C," 6th New York Cavalry, 22: Culpeper, Va., 11th October; admitted hospital and specimen removed by Surgeon D. W. Bliss, U. S. Vols., 12th October, 1863. This man, who is an orderly at the Army Medical Museum, feeds himself and can use his arm with tolerable facility, and is able to lift and carry very heavy weights without the assistance of an apparatus, January, 1867.

Contributed by the operator.

See 4699, **XXV.** A. B. a. 31; 4627, **XXVI.** A. 1, 6.

See class **XXVII.** B. A. c.

2227. The head and nearly six inches of the shaft of the right humerus, excised for extensive longitudinal fracture
c. 44. below the surgical neck. The epiphysis is uninjured.

Private N. M., "K," 3d Indiana Cavalry: Sevierville Road, Tenn., 20th February; excised by Assistant Surgeon H. L. W. Burritt, U. S. Vols., the same day; died, 25th February, 1864.

Contributed by the operator.

3805. The head and seven inches of the shaft of the right humerus, excised for fracture by grapeshot at the junction of
c. 45. the upper thirds, the periosteum being stripped to the capsular ligament.

Lieutenant A. F. K., "A," 8th Maine: Second Fair Oaks, 27th October; admitted hospital, Fort Monroe, and excised by Surgeon D. G. Rush, 101st Pennsylvania, 29th October; died from pyæmia, 15th November, 1864.

Contributed by the operator.

For other illustrations, see 4629, **XXVI.** A. 3, 112, 143, 144, 147, 148.

d. AMPUTATIONS.

4126. The upper extremity of the left humerus, amputated at the shoulder joint. A conoidal ball, which has reversed
d. 1. itself, is embedded in the head of the bone surrounded with shreds of clothing. The missile entered from the rear, shattered the greater tuberosity and fractured the articular surface into several fragments. The fracture does not extend below the surgical neck.

Private S. B., "B," 88th Pennsylvania: amputated by Surgeon J. W. Rawlings, 88th Pennsylvania; discharged, 19th October, 1864.

Contributed by the operator.

See class **XXVII.** B. B. d.

4115. The upper portion of the left humerus amputated at the shoulder joint. The inner portion of the epiphysis is
d. 2. broken, an oblique fracture runs directly through the head and surgical neck, and several fissures extend over the articular surface.

Private A. E. H., "F," 1st Maine Heavy Artillery: amputated by Surgeon D. S. Hays, 110th Pennsylvania, 2d October, 1864.

Contributed by the operator.

1551. The upper portion of the left humerus comminuted in the posterior portion of the surgical neck, with a fracture
d. 3. which extends vertically through the head continued longitudinally down the shaft. Amputated at the shoulder joint by Surgeon G. W. Ramsey, 95th New York.

Contributed by the operator.

3144. The upper half of the right humerus shattered in the surgical neck, and amputated at the joint. A portion of
d. 4. the fracture occupies the epiphyseal line, which is not crossed.

Private C. S., "B," 7th New York Heavy Artillery: wounded, 28th August; amputated by Assistant Surgeon J. C. McKee, U. S. Army, Washington, 1st September, 1864; discharged, 30th March, 1865.

Contributed by Acting Assistant Surgeon H. M. Dean.

1349. The left humerus amputated at the shoulder joint. The surgical neck is fractured with much loss of substance,
d. 5. and the external condyle is split off.

Private A. H., "A," 3d Iowa Cavalry: wounded by two round balls and three buckshot, 1st May; amputated by Surgeon Isaac Casselberry, 3d May, 1863. Recovered.

Contributed by Assistant Surgeon T. J. Maxwell, 3d Iowa Cavalry.

4124. The upper half of the right humerus. The bone has been shattered throughout the upper third of its shaft, and
d. 6. was amputated at the joint.

Private G. H., "D," 1st Massachusetts Heavy Artillery: amputated by Surgeon O. Evarts, 20th Indiana, 2d October, 1864. Recovered.

Contributed by the operator.

4162. The right humerus with the upper third of the shaft thoroughly shattered, amputated at the shoulder joint.
d. 7. Private S. R. S., "G," 207th Pennsylvania, 34: Petersburg, 2d April; amputated by Assistant Surgeon W. Carroll, U. S. Vols., City Point, Va., 5th; died from hæmorrhage, 7th April, 1865.

Contributed by the operator.

4107. The right humerus, amputated at the shoulder joint for a comminuted fracture of the upper third and a wound
d. 8. of the axilla.

Sergeant H. S., "E," 40th New York: amputated by Surgeon Henry F. Lyster, 5th Michigan, 11th September, 1864. Recovered.

Contributed by the operator.

4114. The upper half of the right humerus, which was comminuted in the upper third and amputated
d. 9. at the shoulder joint.

Private P. R., "B," 120th New York: amputated by Surgeon J. S. Jamison, 86th New York, 19th September, 1865.

Contributed by the operator.

4149. The right humerus, shattered in the upper third of the shaft without displacement of fragments
d. 10. and amputated at the shoulder joint.

Private C. J., "C," 12th Massachusetts: amputated by Surgeon J. W. Rawlings, 88th Pennsylvania.

Contributed by the operator.

1082. The left humerus, perforated and comminuted at the junction of the upper thirds and amputated
d. 11. at the shoulder joint. Several medical officers who examined the case considered the joint involved, and the specimen illustrates how readily an error of diagnosis may occur. The fracture does not extend to within two inches of the lower line of the tuberosities. Amputated by Surgeon H. E. Goodman, U. S. Vols., after Chancellorsville. Recovered. *See figure* 44.

Contributed by the operator.

1234. The right humerus, amputated at the shoulder joint for a comminuted fracture by a large pistol
d. 12. ball at the upper thirds.

Private D. S. D., "F," White's Battalion (Rebel): Brandy Station, 9th June; admitted hospital, Washington, 10th; amputated by Surgeon G. S. Palmer, U. S. Vols., 11th June, 1863. Recovered.

Contributed by Acting Assistant Surgeon B. P. Brown.

1540. The upper two-thirds of the right humerus, amputated at the shoulder joint for extensive
d. 13. fracture with loss of substance of the upper third.

Corporal C. R., 29th New York: Chancellorsville, 3d May; amputated by Surgeon R. Thomain, 29th New York, 7th May, 1863.

Contributed by the operator.

FIG. 44. Humerus disarticulated for presumed involvement of joint in fractured upper third. *Spec.* 1082.

2042. The left humerus, comminuted by a conoidal ball in the upper third and amputated at the joint. The highest
d. 14. line of fracture is one and a half inches below the smaller tuberosity.

Private F. B., "G," 1st Pennsylvania Reserve Artillery: Morton's Ford, Va., 6th February; amputated Second Corps Hospital, 8th February, 1864. Recovered.

Contributed by Surgeon J. Dwinelle, 106th Pennsylvania.

2323. The upper half of the left humerus, amputated at the shoulder joint after fracture in the middle third by a round
d. 15. shot. A fissure three inches in length exists in the upper and outer portion of the bone, without communicating with the seat of fracture.

Contributed by Surgeon W. A. Meagher, 69th New York.

2564. The upper third of the right humerus, disarticulated for fracture of the head by a conoidal ball, which destroyed
d. 16. the greater tuberosity and lodged. Several partial fractures extend through the head and neck.

Private J. B., "C," 7th New York, 27: Cold Harbor, 3d June; amputated at the joint, by Surgeon N. R. Mosely, U. S. Vols., Washington, 16th June, 1864.

Contributed by the operator.

See class **XXVII.** B. B. d.

2531. The upper third of the left humerus, which was disarticulated. The head and surgical neck were shattered by a
d. 17. conoidal ball, the fractures extending four inches down the shaft. Two and a half inches of the acromion, mounted with the specimen, was probably removed at the time of amputation.

Sergeant G. W. M, "A," 6th Pennsylvania, 20: Mine Run, Va., 27th November; amputated on the field, 30th November, 1863. Recovered.

Received from the Army of the Potomac.

728. The head and a portion of the shaft of the left humerus, after amputation at the shoulder joint for shattering at
d. 18. the surgical neck by a charge of shot at the closest range. Some of the shot are embedded in the specimen. The muscles from the anterior exterior and part of the posterior surfaces of the shoulder and arm were torn away.

L. R., (civilian,) 28: accidentally, Redwoodville, Minn., 2d October; carried twenty-five miles to Fort Ridgely; disarticulated, with one flap from the inner and posterior part of the arm, by Acting Assistant Surgeon Alfred Muller, 4th October; left the Post for his home entirely well, 1st November, 1866.

Contributed by the operator.

See class **XXVII.** B. B. d.

93. The greater part of the left humerus fractured, with comminution at the junction of the upper thirds, by a conoidal
d. 19. ball. The longitudinal fractures extend for five inches.

Private L. H., "G," 143d Pennsylvania, 31: Wilderness, 5th May; disarticulated by Surgeon J. Ebersoll, 19th Indiana, 6th; admitted hospital, Washington, 26th May, 1864; discharged the service, Philadelphia, 23d January, 1865.

Contributed by the operator.

111. The upper half of the right humerus, disarticulated for shattering of the upper third.
d. 20. Private J. Van L., "G," 149th Pennsylvania: before Petersburg, July, 1864; amputated on the field, by Surgeon W. Humphreys, 149th Pennsylvania.

Contributed by Surgeon C. A. Chamberlain, U. S. Vols.

119. The greater part of the right humerus, shattered at the junction of the upper thirds.
d. 21. Private H. F. K., "E," 12th New Hampshire, 21: Chancellorsville, 3d May; admitted hospital, Washington, 6th; disarticulated by antero-posterior flap, by Surgeon G S. Palmer, U. S. Vols., 7th May; discharged the service, 26th June, 1863.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

123. The upper portion of the right humerus, after disarticulation for fracture with comminution in the upper third.
d. 22. The epiphysis has become completely separated in the preparation.

Private C. W., "K," 16th Massachusetts, 19: Spottsylvania, 9th May; amputated by antero-posterior flap, by Surgeon C. C. Jewett, 16th Massachusetts, the same day; admitted hospital, Alexandria, 14th May; transferred to Massachusetts, 26th June; discharged the service, 19th November, 1864.

Contributed by the operator.

B. Secondary.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Excisions.
- d. Amputations.
- e. Other operations.

b. Complete Fractures.

1046. The upper fourth of the left humerus, with a depressed fracture of the inmost articular surface from a buckshot,
b. 1. which is attached. The parts immedia'ely adjacent are necrosed.

Contributed by Dr. Jas. R. Wood.

3939. The upper fourth of the left humerus fractured by a conoidal ball, which impinged against the extremity of the
b. 2. diaphysis anterior to the inner tuberosity, having passed through the upper part of the thorax. A deep oblique fissure extends down the shaft, and several smaller ones enter the articular surface, which is eroded.

Private C. W., "H," 9th New York Heavy Artillery: wounded, Monocacy, and admitted hospital, Frederick, 9th July; died, 22d July, 1864.

Contributed by Acting Assistant Surgeon J. H. Bartholt.

1952. The left scapula and upper half of the humerus, thirty-five days after injury. The greater tuberosity is fractured
b. 3. by a conoidal ball, and a line of necrosis is established along its lower border. There is a partial fracture of the anatomical neck, and the head is friable. The inferior surface of the acromion is eroded. There are two fissures in the lower wing of the scapula.

Corporal G. S., Louisiana Guard Artillery, (Rebel,) 34: Rapidan Station, 7th November; admitted hospital, Washington, 14th; died from pyæmia, 30th November, 1863.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

See 1424, **XXVII.** B. B. d. 198.

1139. The left scapula, with several partial fractures in and below the base of the spine; and the upper third of the
b. 4. humerus, with the outer and posterior portion of the head carried away.

Private J. C. G., "D," 63d Pennsylvania: Second Fredericksburg, 3d May; admitted hospital, Washington, 9th; died from pyæmia, 21st May, 1863

Contributed by Surgeon Thomas Antisell U. S. Vols.

3681. The upper portion of the right humerus and the scapula. A conoidal ball has grazed the head just above the
b. 5. bicipital groove, and, battered and reversed in position, lodged in the neck of the scapula, having broken off the upper border of the glenoid cavity. A fragment of clothing is held by the missile against the bone.

Corporal J. P., "B," 9th New York Heavy Artillery: Cold Harbor, 1st June; admitted hospital, Philadelphia, 13th; died from pyæmia, 20th June, 1864.

Contributed by Acting Assistant Surgeon L. Fassitt.

See class **XXVII.** B. B. d.

641. The left scapula fractured through the neck and glenoid cavity, with the coracoid process broken off three weeks
b. 6. after injury.

Sergeant J. H. R., "H," 11th Pennsylvania Reserves: Fredericksburg, 13th December; admitted hospital, Washington, 16th December, 1862; died, January, 1863.

Contributed by Surgeon O. A. Judson, U. S. Vols.

See 901, **III.** A. B. a. 19; 640, **IV.** A. B. b. 3.

2840. The left scapula and upper portion of the humerus, twenty-three days after injury. The glenoid cavity is
b. 7. destroyed, the coracoid process is broken off, and a fracture extends under the spine of the scapula. The head of the humerus appears to have been grazed by the ball, which lodged in the lung. The articulation is disorganized, and there is no attempt at repair.

Private C. N. L., "B," 1st Maine Heavy Artillery, 26: Petersburg, 19th June; died from secondary hæmorrhage, Washington, 12th July, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

1615. Portions of the left scapula and humerus. A bullet grooved the inner tuberosity, fractured the lower part of the
b. 8. glenoid cavity and escaped beneath the spine. There was no attempt at repair.

Private A. T., "H," 26th Wisconsin, 42: Gettysburg, 2d July; admitted hospital, Baltimore, 14th; died, 22d July, 1863.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

938. The upper third of the left humerus, six weeks after injury. The bone was shattered at the surgical neck, and
b. 9. the head, eroded and spongy, gives no indication of repair. In the shaft several of the fragments are bound together by a feeble osseous deposit.

Private A. C. R., "B," 126th Pennsylvania, 30: Fredericksburg, 13th December, 1862; died exhausted, Washington, 29th January, 1863.

Contributed by Surgeon P. Pineo, U. S. Vols.

3669. The upper half of the right humerus, six weeks after injury. An explosive bullet entered near the acromion,
b. 10. passed through the glenoid cavity, fractured the anterior portion of the head of the bone, and caused a double longitudinal partial fracture of five inches on the inner side of the shaft. The head is carious, and necrosed bone borders the lines of separation in the shaft.

Private A. F., "C," 183d Pennsylvania, 35: Cold Harbor, 3d June; admitted hospital, 11th; the bullet was extracted from an abscess over the biceps, 12th June; died from pneumonia, 22d July, 1864.

Contributed by Acting Assistant Surgeon J. A. McArthur.

2068. The upper half of the right humerus, grooved in the greater tuberosity and posterior part of the head by gunshot,
b. 11. three weeks after injury. The articular surface is thoroughly disorganized. A fissure on the posterior portion of the shaft is curiously and delicately bordered by necrosis.

Private G. T. B., "B," 12th South Carolina (Rebel): Gettysburg, 2d July; admitted hospital, Chester, Penna., 9th; died from exhaustion from secondary hæmorrhage, 22d July, 1863.

Contributed by Acting Assistant Surgeon Lewis Fisher.

1460. The upper part of the left humerus, three weeks after injury. The superior and outer portion of the head has
b. 12. been gouged by a bullet. There is no attempt at repair.

Private J. P., "D," 140th New York: Gettysburg, 1st July; admitted hospital, Baltimore, 14th; died from secondary hæmorrhage, 1st July, 1863.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

3551. The upper half of the left humerus, four weeks after fracture of the great tuberosity. The articulation was
b. 13. destroyed by ulceration, and there is no attempt at repair.

Private T. T., "G," 62d Pennsylvania, 30: wounded, 8th May; admitted hospital, Washington, 12th May; able at no time to endure an operation; died from pyæmia, 5th June, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

3790. The upper half of the left humerus and part of the scapula, seventeen days after injury. A conoidal ball
b. 14. perforated the shaft transversely below the greater tuberosity, breaking the inner border of the glenoid cavity, and fracturing the fourth rib and spinous process of fourth dorsal vertebra. An oblique fracture separates the head and greater tuberosity from the shaft, a fissure extends into the head, the shaft near the inner tuberosity is comminuted, and the parts adjoining the track of the ball are necrosed. There is no attempt at repair. The missile is mounted with the specimen.

Private A. O., 1st Maine Battery, 23: Cedar Creek, 19th October; admitted hospital and ball removed from the inferior angle of the right scapula, Winchester, 23d October; died from pneumonia, 5th November, 1864.

Contributed by Surgeon L. P. Wagner, 114th New York.

See classes **III.** A. B. a.; **IV.** A. B. b.; **XXVII.** B. B. d.

2696. The superior third of the left humerus, six weeks after injury. A conoidal ball, which entered three-fourths of an
b. 15. inch below the sternal attachment and passed over the second rib, is embedded in the humerus near the bicipital groove. A piece of cloth driven before the bullet yet lodges with it. The articular surface is carious, the shaft is necrosed in the line of fracture below, and there is no attempt at repair.

Private A. L., "A," 95th New York: Spottsylvania, 12th May; admitted hospital, Washington, 26th May; died from exhaustion, 23d June, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

See classes **XXVII.** B. B. d.; **XXVII.** B′. B′.

612. The right scapula with a portion of the clavicle and the upper half of the humerus. The glenoid articular
b. 16. surface is eroded and enlarged. There is an oblique fracture through the surgical neck of the humerus extending to the lower part of the articular surface, the whole of which is eroded and carious, and a part of the head is absorbed. The fracture is slightly united by a bridge of callus with some displacement, and four inches of the lower fragment are superficially diseased.

Private N. F. W., "H," 35th Massachusetts, 24: Antietam, 17th September; admitted hospital, Philadelphia, 26th September; died from pyæmia, 25th November, 1862.

Contributed by Acting Assistant Surgeon H. Hart.

1978. The upper fourth of the right humerus, ten and a half weeks after shattering at the surgical neck. The epiphysis
b. 17. is thoroughly carious and the joint disorganized by ulceration. The fragments of bone are all dead, and there is no attempt at repair. The battered bullet is attached.

Private S. P. F., "K," 28th North Carolina, (Rebel,) 21: Gettysburg, 2d July; died exhausted, 14th September, 1863.

Contributed by Acting Assistant Surgeon Geo. H. Hadley.

See class **XXVII.** B. B. d.

1047. The right scapula and the upper third of the humerus. The humerus is grooved on the anterior face of the
b. 18. surgical neck, which is completely fractured and from which a spiral fissure extends three inches down the shaft. The bone is necrosed at the lines of solution. The tip of the acromion and the coracoid are broken off; the spine is fractured longitudinally and transversely. Nearly the whole of a belt one inch broad, parallel with and one inch below the spine is wanting, and the dorsum is covered with a thin periosteal deposit. A good illustration of the effect of a ball through a flat bone in the direction of its plane.

Contributed by Dr. Jas. R. Wood.

2083. The head of the left scapula and the upper portion of the humerus. A round bullet passed through the head
b. 19. of the humerus, which in the specimen is necrosed and much absorbed. The glenoid cavity is eroded and enlarged. The greater tuberosity is more spongy than is natural, and numerous small foramina perforate every portion above the epiphyseal line.

Private H. C. S., "C," 116th Illinois: wounded, 22d May; admitted hospital, Memphis, 27th May; died from pyæmia, 3d July, 1863.

Contributed by Assistant Surgeon W. Watson, U. S. Vols.

4342. The upper fourth of the right humerus, with the head transversely perforated by a ball three weeks after injury.
b. 20. The head is shattered and necrosed, and a longitudinal fracture extends down the anterior and posterior surfaces of the shaft.

Private T. R., "K," 4th New York Heavy Artillery, 20: Southside R. R., Va., 2d April; admitted hospital, Washington, 5th; gangrene appeared, 18th; died from secondary hæmorrhage, 22d April, 1865.

Contributed by Surgeon R. B. Bontecou, U. S. Vols.

2887. The upper portions of the left scapula and humerus. A bullet entered beneath the spine of the scapula, fractured
b. 21. the posterior portion of the glenoid cavity, and passed out through the head of the bone, which is destroyed. The tissues in the track of the ball are carious. There is no attempt at repair.

Private L. P., "G," 6th Wisconsin: admitted hospital, Washington, 30th June; died, 21st July, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

3869. The right scapula and upper portion of the humerus, three weeks after injury. A conoidal ball carried away
b. 22. part of the head of the humerus and fractured the head of the scapula. A little periosteal inflammation has occurred, and the head of the humerus is necrosed, but there is no attempt at repair.

Private J. L. McN., "C," 21st Georgia (Rebel): Gettysburg, 1st July; admitted hospital, Frederick, 6th; died from pyæmia, 25th July, 1863.

Contributed by Acting Assistant Surgeon W. L. Adams.

3919. The right scapula and upper portion of the humerus, six weeks after injury. A battered conoidal ball, which
b. 23. traversed the body of the scapula about its middle, having entered the inner border and passed through the glenoid cavity, is lodged within the humerus at the junction of the head and neck. The articular surfaces are destroyed by ulceration. The bullet was not found during life.

Quartermaster Sergeant M. H. C., 72d New York: Monocacy, and admitted hospital, Frederick, 9th July; died, 24th August, 1864.

Contributed by Acting Assistant Surgeon T. J. Dunotte.

See class **XXVI.** B. B. d.

745. The left scapula, with the glenoid cavity and the extremity of the coracoid process removed. The anterior and
b. 24. superior portions are honeycombed with necrosis, and delicate wafer-like layers of exfoliations exist on the dorsum and venter.

Private A. P. H., "A," 50th Georgia, (Rebel,) 21: wounded on the frontal bone and also near the head of the humerus, South Mountain, 14th September; died exhausted, Frederick, 25th November, 1862. There were no cerebral symptoms.

Contributed by Assistant Surgeon George L. Porter, U. S. Army.

See class **I.** A. A. c.

3917. The left scapula and upper portion of the humerus. The inner and posterior portion of the head of the humerus
b. 25. and the entire glenoid cavity, neck of the scapula and coracoid process have been carried away. There is no attempt at repair.

Private G. McC., "K," 14th Virginia Cavalry, (Rebel,) 20: wounded, Monocacy, and admitted hospital, Frederick, 9th July; died, 10th August, 1864.

Contributed by Acting Assistant Surgeon T. E. Mitchell.

2541. The upper third of the right humerus six weeks after injury. The anterior portion of the head is carried away
b. 26. by a musket ball which was found in the right pleural cavity. The head is thoroughly carious.

Private W. A., "A," 1st Delaware, 30: Farmville, Va., 7th April; admitted hospital, Baltimore, 12th May; died with erysipelas, 25th May, 1865.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

See class **XXIII.** A. A.

3940. The upper half of the right humerus, sixteen days after injury. The lower half of the head and the inner half
b. 27. of three inches of the shaft were carried away by a bullet which lodged in the right lung. The remainder of the head is carious. There is no attempt at repair.

Private J. V. McG., "B," 14th New Jersey: Monocacy, 9th July; died, Frederick, 25th July, 1864.

Contributed by Acting Assistant Surgeon A. R. Gray.

See class **XIX.** A. B. a.

811. b. 28. The upper half of the left humerus, one and a half months after injury. The head and surgical neck are shattered, and an oblique fracture with little comminution extends two inches down the shaft. The head is carious and the line of fracture is bordered by necrosed bone, but there is no attempt at repair excepting by a minute deposit of callus at one point.

Corporal C. F. C., "L," 9th New York State Militia, 31: Antietam, 17th September; admitted hospital, Frederick, 25th September; not sufficiently strong to endure amputation; died from pneumonia, 2d November, 1862.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

1128. b. 29. The left scapula and upper portion of the humerus. A conoidal ball has carried away the inner face of the head of the humerus and a considerable portion of the glenoid fossa, and has fractured the scapula with much comminution transversely below the spine. There is no attempt at repair.

Private J. M. F., "B," 12th New Hampshire: Chancellorsville, 3d May; died from pyæmia, 17th May, 1863.

Contributed by Acting Assistant Surgeon W. A. Harvey.

1188. b. 30. The right scapula, struck near its acromial end by a bullet which emerged through its spine, shattering a large portion of the bone. The joint was opened and the glenoid cavity slightly fractured. This soldier also received a wound in the left ankle, for which primary amputation was performed. There was no attempt at repair.

Corporal C. D. S., "H," 100th New York: Folly Island, S. C., 10th April; admitted hospital, Beaufort, S. C., 16th; died from pyæmia, 30th April, 1863.

Contributed by Surgeon F. S. Dibble, 6th Connecticut.

See class **XVI.** A. a. e.

2401. b. 31. The left scapula and upper portion of the shaft of the humerus, four months after injury. A conoidal ball pierced the head of the bone, shattering it, fractured the glenoid cavity, passed down the anterior border of the scapula, breaking it, and escaped at the inferior angle. The whole track of the bullet is perfectly necrosed. The scapula on both surfaces shows traces of feeble deposits of new bone.

Private E. L., "E," 95th New York: Hatcher's Run, Va, 6th February; died from acute dysentery, Baltimore, 16th June, 1864.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

947. b. 32. The upper half of the right humerus shattered in the surgical neck and head, both of which are completely carious and spongy and partially absorbed A trivial amount of callus was deposited at the upper extremity of the lower fragment, but none above the joint.

Contributed by Assistant Surgeon E. J. Marsh, U. S. Army.

3581. b. 33. The right scapula fractured in the supra-spinous fossa; and the upper portion of the humerus, the head of which is entirely absorbed. The joint does not appear to have been implicated in the original injury, but became destroyed by the resulting inflammation. There is a border of necrosed bone at the seat of fracture and a slight osseous deposit near by, but no attempt at repair in the joint.

Private G. F. W., "K," 7th Wisconsin: Wilderness, 5th May; admitted hospital, Washington, 12th May; died from suppuration and chronic diarrhœa, 28th July, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

3110. b. 34. The right scapula and upper third of the humerus, six weeks after injury. The posterior two-thirds of the spine of the scapula have been shattered, and the greater part of the remainder is necrosed. The acromion and coracoid processes, themselves uninjured, are fractured at their junction with the body. The glenoid cavity, at first destroyed by the bullet, is thoroughly carious. The shattered head of the humerus is eroded by ulceration.

Private L. B., "I," 61st Alabama, (Rebel,) 31: before Washington, 12th July; died, 23d August, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

234. b. 35. The left clavicle, scapula and upper half of the humerus. The clavicle is transversely fractured near the middle, the sternal half of the bone being much necrosed and exhibiting a certain amount of ensheathing callus on the internal surface. The head of the humerus is eroded, carious and partly absorbed. The coracoid and acromial processes and upper part of the glenoid fossa are badly fractured, the place of the coracoid being occupied by a small irregular spike of new bone directed inward. The articular surface is carious and absorbed The humerus was accidentally fractured through the surgical neck after death.

Sergeant T. B., 5th U. S. Cavalry: Gaines' Mill, Va., 27th June; admitted hospital, Philadelphia, 30th July; died, 29th September, 1862.

Contributed by Surgeon A. Bournonville, U. S Vols.

3184. The left scapula and upper portion of the humerus. A large part of the infra-spinous portion of the scapula
b. 36. is wanting; the anterior portion of the glenoid fossa appears to have been shot away, the whole surface of the glenoid cavity is destroyed by caries, and the head of the bone has broken down under the ulceration. There is no attempt at repair.

Private W. Y., "E," 151st New York, 30: probably Gettysburg, 3d July; admitted hospital, Baltimore, 10th July; died from suppurative fever, 31st August, 1863.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator of Jarvis Hospital.

695. The left scapula and clavicle and upper part of the humerus, one month after injury. A bullet entered the
b. 37. posterior border of the left axilla, emerged near the middle of the clavicle, wounded the thyroid cartilage, and escaped through the right cheek. The glenoid cavity is destroyed and the adjacent bone necrosed; the head of the humerus is shattered and carious and a fissure extends down its shaft; the body of the scapula has a partial fracture nearly across it, and the clavicle is fractured and necrosed in the middle. One fracture extends from the glenoid cavity up the supra-spinous fossa, and that in the clavicle may have been caused by the blow on the shoulder.

Private D. B., "I," 22d Massachusetts: Fredericksburg, 13th December; admitted hospital, Washington, 18th December, 1862; died from pleurisy, 14th January, 1863.

Contributed by Medical Cadet Burt G. Wilder.

See 697, **XIX.** A. B. a. 3; 696, **XIX.** A. B. a. 12.

1011. The left scapula and upper extremity of the humerus, eight and a half months after injury. A round ball has
b. 38. entered at the lesser tuberosity, passed through the joint and lodged above the glenoid cavity. The head of the humerus is carious and partly absorbed. The glenoid fossa is destroyed by ulceration, and the cavity holding the ball is formed by an expansion of new bone containing three cloacæ. The body of the scapula is irregularly thickened. A good illustration of the effect of a smooth round ball remaining a long time in bone, the irritation of its presence having affected the growth of the entire scapula without having been sufficiently intense to produce death of the parts. A typical case for operative interference.

Corporal H. L. P., "H," 1st Missouri Light Artillery, 32: Shiloh, Tenn., 6th April; admitted hospital, St. Louis, 22d April; died exhausted, 26th December, 1862.

Contributed by Surgeon John T: Hodgen, U. S. Vols.

See class **XXVII.** B. B. d.

1062. A wet preparation of the upper fourth of the left humerus. The head has been broken into several fragments,
b. 39. which have retained their vitality and become consolidated in new positions with new muscular attachments. One of these consolidated fragments has been again fractured, possibly in the removal of the specimen. A formation, as if of a cyst surrounding a lodged bullet, appears in the outer and anterior region. The axillary artery presents a large opening from ulceration, indicating death from secondary hæmorrhage.

Received, without history, from Acting Assistant Surgeon D. W. Cheever.

928. The upper third of the left humerus, and the acromion and coracoid processes and body of the scapula. The
b. 40. glenoid cavity and the two processes are eroded by ulceration. The surgical neck and head of the humerus were shattered by a conoidall ball and are necrosed.

Private A. B., 133d Pennsylvania, 23: Fredericksburg, 13th December; admitted hospital, unable to endure an operation, Point Lookout, Md., 16th December, 1862; died, January, 1863.

Contributed by Acting Medical Cadet J. S. Lombard.

239. The right scapula and upper portion of the humerus. The glenoid fossa is fractured, and the border of the
b. 41. scapula immediately below it is carried away, as if by a missile that crushed the lesser tuberosity fissuring the shaft.

Corporal P. B., "C," 88th Pennsylvania, 43: Antietam, 17th September; admitted hospital, Philadelphia, 27th September; died, 7th October, 1862.

Contributor unknown.

For other illustrations, see 4628, **XXVI.** A. 2, 62.

c. Excisions.

4343. A portion of the head of the right humerus excised for gunshot. The specimen, which is a section one-half inch
c. 1. in its greatest thickness, is completely carious, and retains but a small part of the articular surface.

Corporal H. H., "B," 14th New York Heavy Artillery, 23: Fort Steadman, Va., 25th March; admitted hospital, Washington, 2d April; excised by Surgeon R. B. Bontecou, U. S. Vols., 8th May; discharged the service, 25th July, 1865.

Contributed by the operator.

1683. Ten necrosed fragments of the head of the right humerus, removed by excision twelve weeks after injury.
c. 2. Together they embrace about one-sixth of the epiphysis.

Corporal T. McC., "B," 62d Pennsylvania: a conoidal ball entered the left eye, passed through the antrum of Highmore, the hard palate, the right inferior maxilla, and comminuted the head of the humerus, Chancellorsville, 3d May; nourished by liquid food through a tube for three weeks, in the field; admitted hospital, Washington, 14th June; operation performed, 29th July, 1863. Recovered, with excellent use of limb.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See 4629, **XXVI.** A. 3. 125.

See classes **II.** A. B. f.; **II.** A. C. b.

1023. The extremity of the acromion and portions of the head of the left humerus, excised above the greater tuberosity,
c. 3. three and a half months after injury. The parts were necrosed and nearly detached at the time of operation.

Private H. H., "A," 8th Michigan, 39: Chantilly, Va., 1st September; admitted hospital, Alexandria, 2d September; excised by Assistant Surgeon W. A. Conover, U. S. Vols., 14th December, 1862; discharged, with ability to raise the arm 45°, 6th April, 1863.

Contributed by the operator.

588. Three-fourths of the head of the right humerus, necrosed and in fragments, excised five months after injury.
c. 4. Corporal W. J., "K," 100th New York, 22: Fort Craig, (Petersburg,) Va., 2d April; excision performed, Albany, N. Y, 15th September, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

14. The head of the left humerus, excised at the surgical neck after fracture by a conoidal bullet at the greater
c. 5. tuberosity, which, with the inner part of the anatomical neck, is carried way.

Sergeant J. P., "C," 4th Michigan: Malvern Hill, 1st July; excised by Assistant Surgeon J. S. Billings, U. S. Army, Washington; died from pyæmia, 21st July, 1862.

Contributed by the operator.

2029. The superior and greater portion of the head of the left humerus, excised for gunshot fracture of the inner portion.
c. 6. The line of section is oblique, crossing the anatomical neck.

Private R. W., "D," 6th Connecticut, 24: Pocotaligo, S. C., 22d October; admitted hospital, Beaufort, S. C., 24th October; excised by Surgeon R. B. Bontecou, U. S. Vols, 1st November, 1862; "had recovered nearly all the motions of the joint," July, 1863.

Contributed by the operator.

3145. The head of the left humerus, excised through the surgical neck. The joint was opened and the posterior portion
c. 7. of the head chipped. The specimen is spongy and thoroughly carious.

Private C. T., "G," 21st Connecticut, 22: Cold Harbor, 4th June; admitted hospital, Washington, 8th; excised by Acting Assistant Surgeon F. G. H. Bradford, 29th June; died, from typhoid pneumonia, 23d July, 1864.

Contributed by the operator.

3391. A portion of the head of the right humerus, of which the inner half has been carried away by gunshot, and
c. 8. which appears to have been excised.

Received from Field Hospital, Chattanooga.

60. The head of the left humerus, excised at the surgical neck. A battered conoidal ball is embedded above the lesser
c. 9. tuberosity. Fissures extend across the articular surface, which is carious.

History and contributor unknown.

See class **XXVII.** B. B. d.

1912. The head of the left humerus, excised at the surgical neck. The articular surface is carious and partially
c. 10. absorbed, having been grooved by a bullet. The tuberosities and shaft are uninjured. An oblique section has been made across the anatomical neck.

Corporal S. T., "G," 2d Michigan Cavalry: near Franklin, Tenn., 24th March; excised by Assistant Surgeon C. C. Gray, U. S. Army, 11th June, 1863. Recovered.

Contributed by the operator.

388. The head of the right humerus, excised through the surgical neck. The specimen is spongy and carious, and
c. 11. much shattered by a round ball and buckshot. Several fissures extend into the shaft, which has received some new bone.

Private J. W., 37th New York, 18: White Oak Swamp, Va., 30th June; a prisoner several weeks, and admitted hospital, Philadelphia, July; excised by Acting Assistant Surgeon S. D Gross, 1st August; died, 20th August, 1862.

Contributed by the operator.

325. The head of the right humerus, exhibiting a necrosed gunshot groove in the summit with a distinct line of
c. 12. demarcation, excised at the surgical neck, where three planes of section appear.
Contributed by Assistant Surgeon B. A. Clements, U S. Army.

1925. The head of the right humerus, excised through the surgical neck. About one inch of the shaft has been added
c. 13. to the specimen, to show the extent of the fracture downward The greater tuberosity has been shattered by a conoidal ball and is carious.
Corporal B. F., "G," 73d Ohio, 23: Brown's Ferry, Tenn., 29th October; admitted hospital, Memphis, November; excised, 13th; died, 21st November, 1863.
Contributed by Acting Assistant Surgeon G. P. Hackenburg.

2295. Portion of the head of the right humerus, much shattered and obliquely excised at the surgical neck.
c. 14. Private J. Y., "F," 50th Pennsylvania, 22: admitted hospital, Washington, 14th May; excised by Assistant Surgeon H. Allen, U. S. Army, 16th May; "recovered and returned to duty," (probably for discharge,) 12th October, 1864.
Contributed by Surgeon O. A. Judson, U. S. Vols.

2590. The head of the right humerus, excised through the surgical neck. An excavation at
c. 15. the base of the great tuberosity, the shape and a little greater than the size of a conoidal ball, extends into the head of the bone. The walls of the cavity are perfectly smooth, as if formed by design, and there is no fissuring nor comminution connected with the injury. A very delicate periosteal deposit exists above the line of excision. *See figure* 45.
Private M. J., "C," 5th U. S. Artillery: Gettysburg, 1st July; admitted hospital, Philadelphia, 23d July; excised by Acting Assistant Surgeon C. R. McLean, 1st August; doing well, 23d September, 1863.
Contributed by the operator.

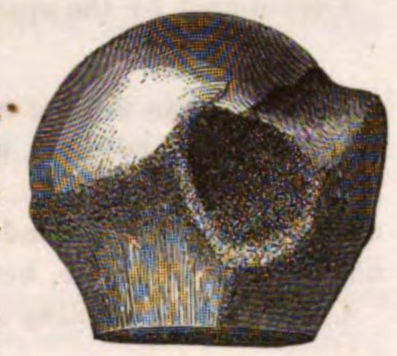

FIG. 45. Excised head of humerus, showing a symmetrically formed bullet-cavity *Spec.* 2590.

342. The head of the left humerus, excised through the surgical neck. A conoidal pistol ball, which is embedded
c. 16. between the tuberosities, has destroyed the adjacent fifth of the epiphysis.
Contributed by Surgeon W. Varian, U. S. Vols.
See class **XXVII.** B. B. d.

2466. The head of the left humerus, obliquely excised through the surgical neck. The extremity of the acromion is
c. 17. mounted with the specimen. Pieces of the scapular spine were also removed, but are not preserved. The head is grooved transversely across its anterior face.
Private B. M., "H," 99th Pennsylvania: Wilderness, 5th May; admitted hospital, Washington, 11th; excised by Surgeon G. L. Pancoast, U. S. Vols., 25th May, 1864.
Contributed by the operator.

4023. The head of the left humerus, excised through the surgical neck. A bullet has grooved the external portion of the
c. 18. head, and two fissures extend in the inner articular surface. The bone bruised by the ball is carious.
Private J. F., "M," 21st North Carolina (Rebel). Died.
Received from Ninth Corps Hospital.

994. The head of the left humerus, deeply grooved by gunshot on its posterior articular surface and carious, excised
c. 19. through the surgical neck.
Private R. C., 4th New York, 28: Fredericksburg, 13th December, 1862; excised by Assistant Surgeon C. Wagner, U. S. Army, Point Lookout, Md., 17th January; "healed favorably;" discharged, 10th April, 1863.
Contributed by the operator.
See 4629, **XXVI.** A. 3, 121.

4259. The head of the left humerus, excised at the surgical neck. A bullet entering from behind tore off the posterior
c. 20. edge of the glenoid cavity and deeply grooved the head of the humerus. A fracture extends down the bicipital groove into the shaft.
Private W. H. C., "E," 34th Massachusetts, 24: New Market, Va., 15th May; admitted hospital, Cumberland, Md., 16th; excised by Surgeon J. B. Lewis, U. S. Vols., 22d May, 1864; discharged, "with a moderate usefulness of limb," 17th February, 1865.
Contributed by the operator.

4192. The head of the left humerus, excised at the surgical neck for a slight fracture of the inner face.
c. 21. Sergeant S. S. G., "B," 9th West Virginia, 26: Fisher's Hill, Va., 22d September; admitted hospital, Philadelphia, 10th October; excised by Assistant Surgeon Thomas C. Brainerd, U. S. Army, 17th; died, exhausted, 25th October, 1864.
Contributed by the operator.

190. c. 22. The head of the right humerus, excised through the surgical neck. An elongated ball fractured the great tuberosity crushing in the cancellated structure. A small portion of the anatomical neck is involved. The line of excision is very oblique. The missile is mounted with the specimen.

Private J. M., "A," 109th Pennsylvania, 35: Cedar Mountain, Va., 9th August; admitted hospital, Washington, 15th; excised by Surgeon D. W. Bliss, U S. Vols., 19th August; bullet removed from beneath the spine of the scapula, 12th October; discharged the service, 12th December, 1862.

Contributed by the operator.

See 2432, **XXVII.** B. B. d. 22.

890. c. 23. The head of the left humerus, excised through the surgical neck, with several necrosed fragments of the shaft attached by callus. The epiphysis is uninjured, but the head at the line of section is spongy.

Private W. F. W., "F," 4th New Jersey, 19: Gaines' Mill, 27th June; admitted hospital, Philadelphia, 30th July; excised by Acting Assistant Surgeon F. A. Keffer, 1st September, 1862; discharged the service, 24th January, 1863. "Loss of use of left arm" reported, 16th January, 1865.

Contributed by the operator.

2435. c. 24. The head of the right humerus, excised through the surgical neck, two months after injury. The head, split longitudinally, is thoroughly necrosed.

Private J. P., "B," Purnell Legion, Maryland Volunteers: Six-Mile House, (near Petersburg,) Va., 21st August; admitted hospital, Philadelphia, 29th August; excised by Acting Assistant Surgeon J. M. McGrath, 15th October, 1864 discharged the service, healed, 24th January, 1865.

Contributed by Acting Assistant Surgeon L. C. Cummins.

1206. c. 25. The head of the right humerus, excised at the surgical neck. A conoidal ball, embedded in the upper part of the anatomical neck, has split the specimen, vertically, into two parts, with some loss of substance. *See figure* 46.

Private G. H., "A," 75th Ohio, 32: Chancellorsville, 2d May; admitted hospital, Alexandria, 25th; excised by Surgeon Charles Page, U. S. Army, 27th May; died, 7th June, 1863.

Contributed by the operator.

See 4627, **XXVI.** A 1, 11.

See class **XXVII.** B. B. d.

FIG. 46. Excised head of humerus, with embedded ball *Spec.* 1206.

1703. c. 26. The head of right humerus, excised at the surgical neck. The external portions of the head and anatomical neck, on both sides of the epiphyseal line, are occupied by a cavity the size of a walnut, with spongy and carious walls. There are no fissures in the head or shaft.

Private J. M., 37th Ohio, 18: conoidal ball, Vicksburg, 4th June; admitted hospital, and excision performed by Surgeon J. G. Keenon, U. S. Vols., Memphis, 12th July; died from pyæmia, 23d July, 1863.

Contributed by the operator.

3303. c. 27. The head of the left humerus, excised through the surgical neck, which was shattered by gunshot. The radiating fissures do not cross the anatomical neck.

Private A. G., "A," 188th Pennsylvania: Cold Harbor, Va., 1st June; excised near Alexandria, 13th June; died, 11th July, 1864.

Contributed by Surgeon D. P. Smith, U. S. Vols.

1999. c. 28. The head of the right humerus, excised through the surgical neck for a partial fracture at the posterior portion of the anatomical neck by a conoidal ball which lodged.

Corporal R. McL., "C," 1st United States Sharpshooters (Volunteers): Mine Run, Va., 27th November; excised by Surgeon D. P. Smith, U. S. Vols., near Alexandria, 20th December, 1863; discharged, 22d February, 1864.

Contributed by the operator.

See 4628, **XXVI.** A. 2, 100.

See class **XXVII.** B. B. d.

3047. c. 29. The head of the left humerus, excised through the surgical neck. The inner portion of the head and the extremity of the clavicle were carried away by gunshot. A line of demarcation, crossing the epiphyseal line, encircles a necrosed portion of the specimen. A card photograph stands with the specimen, representing the appearance on recovery.

Private J. H., "F," 29th Massachusetts, 19: Petersburg, 15th June; admitted hospital, Washington, 21st June; excised by Surgeon R. B. Bontecou, U. S. Vols., 17th July, 1864. Recovered.

Contributed by the operator.

3048. The head of the right humerus, excised through the surgical neck. The epiphysis is fractured at the summit or
c. 30. the bicipital groove and is carious.

Private D. H. B., "C," 7th Wisconsin, 35: Wilderness, 8th May; admitted hospital, Washington, 14th May; excised by Surgeon R. B. Bontecou, U. S. Vols., 30th June; died from exhaustion following secondary hæmorrhage, 4th July, 1864.

Contributed by the operator.

2595. The head of the left humerus, excised through the surgical neck. The posterior portion of the specimen has been
c. 31. destroyed by gunshot, a slight osseous deposit exists near the seat of injury, and the remainder of the epiphysis is carious.

Private C. N., "I," 11th New Jersey: Wilderness, 3d May; excised by Acting Assistant Surgeon J. H. McClellan, Philadelphia, 16th August, 1864; transferred to Veteran Reserve Corps, 25th February, 1865.

Contributed by the operator.

See 4629, **XXVI.** A. 3, 123.

3801. The head of the left humerus, excised through the surgical neck for loss, after fracture, of the external fourth.
c. 32. The specimen is not fissured.

Captain J. F. F., "H," 22d U. S. Colored Troops: Chapin's Farm, Va., 30th September; admitted hospital, Fort Monroe, 2d October; excised by Surgeon D. G. Rush, 101st Pennsylvania, 8th October, 1864. "Left the hospital three months after the operation with a very useful limb, and will continue his duties in the service."

Contributed by the operator.

2592. The head of the left humerus, excised through the surgical neck for necrosis following gunshot. A missile has
c. 33. passed obliquely through the bone from above downward near the base of the great tuberosity, and the adjoining tissues are carious and greatly absorbed. A small amount of spongy callus has been deposited externally.

Private E. McC., "B," 69th New York: Fredericksburg, 13th December, 1862; excised by Assistant Surgeon C. R. Greenleaf, U. S. Army, Philadelphia, September, 1863; transferred to Veteran Reserve Corps, 25th February, 1865.

Contributed by the operator.

See 4628, **XXVI.** A. 2, 100.

440. The head and one inch of the shaft of the left humerus, excised for shattering by a conoidal ball which, much
c. 34. battered, has lodged at the extremity of the bicipital groove. The articular surface is divided into three unequal portions, and is superficially eroded. Two-fifths of the anterior portion of the specimen are wanting, as if from extreme comminution.

Contributed by Surgeon H. S. Hewit, U. S. Vols.

See class **XXVII.** B. B. d.

2599. The head of the left humerus, excised just below the surgical neck. The greater portion of the head has been
c. 35. destroyed or absorbed, and the remainder is thoroughly carious. The conoidal ball which perpetrated the mischief remains embedded at the extremity of the diaphysis.

Private J. F., "C," 72d Pennsylvania: Gettysburg, 3d July; excised by Acting Assistant Surgeon J. H. McClellan, Philadelphia, 22d July; died from pyæmia, 27th September, 1863.

Contributed by the operator.

See 4628, **XXVI.** A. 2, 100.

See class **XXVII.** B. B. d.

3162. The head and one-half inch of the shaft of the right humerus, excised. The anterior and inner portion is carried
c. 36. away by gunshot. A slight fissure extends down the shaft.

Private A. L., "E," 4th Maryland, 45: Weldon Railroad, Va., 20th August; admitted hospital, Washington, 24th; excised, 31st August; died exhausted, 5th September, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

10. The head and one-half inch of the left humerus, excised. The inner portion of the head is carried away, and the
c. 37. articular surface is eroded. The coracoid process and extremity of the clavicle also were fractured.

Private W. V., "E," 9th Massachusetts, 22: Malvern Hill, 1st July; admitted hospital, Washington, 4th; excised by Surgeon R. H. Coolidge, U. S. Army, 18th July; discharged the service, 15th December, 1862. Arm very useful in ordinary outdoor employment, and local and general health excellent, December, 1865.

Contributed by Acting Assistant Surgeon D. N. Rankin.

See 4629, **XXVI.** A. 3, 121.

2462. The head and three-fourths of an inch of the shaft of the left humerus, excised. A conoidal ball striking
c. 38. between the tuberosities has gouged out a portion and split the head and shaft vertically without fissures.

Captain S. R. R., Acting Assistant Adjutant General, 2d Brigade, 2d Division, 18th Corps: Cold Harbor, 3d June; admitted hospital and excision performed, Washington, 8th June; died at home, August, 1864.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

642. The necrosed head of the right humerus, excised three-fourths of an inch below the bases of the tuberosities.
c. 39. The specimen shows a gunshot fracture of the superior portion, with a small fissure crossing the epiphyseal line.
Contributed by Acting Assistant Surgeon E. Hartshorne.

330. The head and half an inch of the shaft of the right humerus, excised. The anterior portion of the surgical neck,
c. 40. including the lower parts of both tuberosities, is carried away by gunshot, and the articular surface is eroded and carious.

Sergeant G. H., "E," 35th Massachusetts: Antietam, 17th September; admitted hospital, Washington, 22d September; excised, 21st October; died from pyæmia, 3d November, 1862.

Contributed by Assistant Surgeon C. A. McCall, U. S. Army.

4260. The excised head and one inch of the shaft of the left humerus. A bullet entered the outer border of the
c. 41. deltoid, one and a half inches below the acromion, and carried away the posterior half of the surgical neck, chipping the head. The articular surface is eroded, as if by ulceration.

Private R. A. C., "E," 14th West Virginia: Winchester, 20th July, 1864; excised by Surgeon J. B. Lewis, U. S. Vols. Recovered.

Contributed by the operator.

1207. The upper half of the left scapula fractured, and the shattered head and one inch of the shaft of the humerus
c. 42. excised. A conoidal ball broke the head of the humerus into four parts, with a longitudinal fissure running down the shaft, for which it was excised. The upper portion of the glenoid cavity and the base of the coracoid process are fractured. The articular surface of the scapula is eroded.

Private H. A., "H," 14th Indiana, 22: Second Fredericksburg, 3d May; admitted hospital, Washington, 9th; excised, 27th May; died from pyæmia, 1st June, 1863.

Contributed by Acting Assistant Surgeon W. F. Munroe.

3618. The head and one inch of the shaft of the left humerus, excised. A conoidal ball passed through the head,
c. 43. deeply grooving it. Much of its substance is now lost by absorption.

Private J. W., "C," 61st New York, 22: Wilderness, 5th May; admitted hospital, Philadelphia, 22d July; excised by Acting Assistant Surgeon W. P. Moon, 27th August, 1864; died of pneumonia, 4th March, 1865.

Contributed by Acting Assistant Surgeon J. Sheppard.

4042. The head and one inch of the shaft of the right humerus, shattered on the anterior surface.
c. 44. Private R. G. C., "D," 133d Pennsylvania: Petersburg, 25th March; admitted hospital, Washington, 28th March; excised by Surgeon D. W. Bliss, U. S. Vols., April; discharged service, 13th June, 1865.

Contributed by the operator.

4211. The head and one inch of the shaft of the right humerus, excised for a fracture of the lesser tuberosity pene-
c. 45. trating the cancellated structure.

Private B. W., "A," 12th Mississippi (Rebel): Petersburg, 2d April; admitted hospital, Fort Monroe, 3d; excised by Surgeon D. G. Rush, 101st Pennsylvania, 18th April, 1865. Recovered.

Contributed by the operator.

976. The excised head and one inch of the shaft of the left humerus. The surgical neck is completely necrosed, but
c. 46. the disease has not crossed the epiphyseal line.
Contributor and history unknown.

2002. The head and one inch of the left humerus, excised for fracture of the head near the greater tuberosity and
c. 47. ulceration of the articular surface.

Sergeant J. G., "F," 69th Pennsylvania: in action, Virginia, 27th November; excised by Surgeon D. P. Smith, U. S. Vols., 25th December, 1863. Recovered.

Contributed by the operator.

See 4629, **XXVI.** A. 3, 125.

2180. A portion of the head and one inch of the shaft of the right humerus, excised seven weeks after comminution.
c. 48. A segment one and a half inches in diameter alone remains of the head. The inner half of the shaft opposite the tuberosities has been absorbed.

Sergeant J. S., "K," 2d Missouri, 35: Chickamauga, Ga., 19th September; admitted hospital, Nashville, 25th September; excised, 9th November, 1863. Recovered.

Contributed by Assistant Surgeon C. J. Kipp, U. S. Vols.

See 4629, **XXVI.** A. 3, 125.

451. The head and one inch of the shaft of the right humerus, excised. The inner half of the head was carried
c. 49. away by gunshot, and the specimen shows eight small fragments that were removed. The neck was sawn through in two places.

Private J. L. H., "I," 27th Indiana: Antietam, 17th September; admitted hospital, Frederick, 28th September; excised, 4th October; discharged, with "tolerable use of arm and forearm," December, 1862.

Contributed by Acting Assistant Surgeon J. H. Peabody.

See 4629, **XXVI.** A. 3, 121.

94. Excised head and one inch of the shaft of the left humerus. The inner portion of the head is carried away by
c. 50. gunshot, the whole is necrosed, and a circular section of bone crossing the epiphyseal line, as though the place of impact, is in process of separation.

Contributor and history unknown.

3265. The excised head and one inch of the shaft of the left humerus, with the extremity of the coracoid process and
c. 51. the head of the scapula. The head of the humerus was vertically fractured and the coracoid process broken off by a musket ball, which entered in front of the acromion and escaped through the body of the scapula.

Private J. J., "A," 11th Connecticut: near Gaines' Mill, Va., 11th June; admitted hospital, Washington, 15th; excised by Acting Assistant Surgeon Ottman, 23d; died, 26th June, 1864.

Contributed by the operator.

4282. The head and one inch of the shaft of the right humerus, excised. The inner fifth of the head is broken off by
c. 52. a conoidal ball which entered from above. There is no fissuring.

Private S. B., "K," 20th Pennsylvania: Petersburg, 25th March; excised by Surgeon G. L. Pancoast, U. S. Vols., Washington, 1st April; died from pyæmia, 10th April, 1865.

Contributed by the operator.

2596. The head and one inch of the shaft of the left humerus, excised. The head is split nearly vertically, and the
c. 53. posterior fourth is carried away by a round ball. A fracture extends obliquely down the shaft.

Private E. Van T., "A," 120th New York: Chancellorsville, 3d May; excised by Assistant Surgeon C. R. Greenleaf, U. S. Army, Philadelphia, 24th June, 1863. "Has a good, strong arm."

Contributed by the operator.

335. The head of the right humerus much shattered, excised with one inch of the shaft.
c. 54. Private W. B., "G," 20th New York State Militia: Second Bull Run, 30th August; admitted hospital, Alexandria, 1st September; excised by Dr. Joseph Pancoast, 14th September, 1862; discharged the service, with partial use of arm, 10th November, 1863.

Contributed by Surgeon J. E. Summers, U. S. Army.

3302. The head and one inch of the shaft of the right humerus, excised for a fracture of the greater tuberosity and
c. 55. adjoining portion of the head.

Private M. T., "K," 40th New York, 24: Wilderness, 5th May; admitted hospital, near Alexandria, 10th; excised by Surgeon D. P. Smith, U. S. Vols., 26th May; died, 3d June, 1864.

Contributed by the operator.

2830. Excised head and one inch of the shaft of the right humerus. A bullet has passed through the head, completely
c. 56. destroying its integrity and fracturing the surgical neck.

Private W. W., "B," 60th Ohio.

Contributor and history unknown.

See 4628, **XXVI.** A. 2, 100.

3559. Excised head and one inch of the shaft of the right humerus. The joint has been opened by a fracture of the
c. 57. greater tuberosity, and the articular surface is spongy and eroded. A fissure extends down the shaft.

Private J. M., "E," 155th Pennsylvania, 26: Wilderness, 5th May; admitted hospital with acute bronchitis, Washington, 13th May; excised by Assistant Surgeon W. Thomson, U. S. Army, 15th June; died with double pleuritis, 14th July, 1864.

Contributed by the operator.

3691. The excised head and one inch of the shaft of the right humerus. A gunshot fracture exists immediately behind
c. 58. the greater tuberosity, and the whole specimen is carious. The humerus was dislocated.

Private W. B. W., "A," 2d Wisconsin, 21: excised by Surgeon H. Culbertson, U. S. Vols., Madison, Wis., 20th June, 1864. Recovered.

Contributed by the operator.

See 4629, **XXVI.** A. 3, 125.

198. c. 59. The excised head and one inch of the neck of the humerus, with a fragment of the shaft two and a half inches in length. This fragment, at the surgical neck, has become reattached by callus not in the original plane, and the osseous deposits show the operation to have been a secondary one. A fissure of the bicipital groove does not extend into the epiphysis, which is uninjured.

Contributed by Surgeon R. H. Alexander, U. S. Army.

3052. c. 60. The head and one-half inch of the shaft of the right humerus, excised. A bullet has struck the anatomical neck at the posterior border of the greater tuberosity, and an excavation three-fourths of an inch in depth by one and one fourth inches in diameter at the surface, without fissuring, has resulted. The entire articular surface has been destroyed by ulceration.

Private J. M. L., "C," 1st Maine Heavy Artillery, 18: Petersburg, 18th June; admitted hospital, Washington, 21st June; excised by Surgeon R. B. Bontecou, U. S. Vols., 18th July, 1864. Convalescent.

Contributed by the operator.

17. c. 61. The head and one and a half inches of the shaft of the left humerus, excised The head of the bone was completely shattered by a pistol ball perforating it. The line of section is at an angle of forty-five, and was made with a whip-saw, a chain-saw not being in possession.

Lieutenant F. J. O'B., General Lander's Staff: near Bloomery Furnace, Va., 20th February; excised by Brigade Surgeon George Suckley, Cumberland, Md., 20th March; died from tetanus, 1st April, 1862.

Contributed by Surgeon A. McMahon, U. S. Vols.

3033. c. 62. The head and one and a half inches of the shaft of the right humerus, excised. A battered conoidal ball is lodged in the anatomical neck just within the bicipital groove. A vertical fracture divides the anterior third of the head.

Private J. H., "H," 1st Michigan, 17: Petersburg, 17th June; admitted hospital, Washington, 21st; excised by Surgeon R. B. Bontecou, U. S. Vols., 20th June; died from exhaustion following secondary hæmorrhage, 24th July, 1864.

Contributed by the operator.

See class **XXVII.** B. B. d.

2363. c. 63. The head and one and a half inches of the shaft of the right humerus, excised. A conoidal ball lodged behind the greater tuberosity and split off the laminated structure over a triangular surface of which each side is one and a half inches.

Private D. B. W., "F," 1st Maine Heavy Artillery, 33: North Anna, Va., 19th May; admitted hospital, Washington, 22d; excised by Surgeon D. W. Bliss, U. S. Vols., 23d May; died, 8th June, 1864.

Contributed by the operator.

See 4628, **XXVI.** A. 2, 100.

See class **XXVII.** B. B. d.

2479. c. 64. The excised head and one and a half inches of the shaft of the left humerus. The outer portion of the head was carried away by a musket ball and the coracoid process shattered, its extremity being removed with the specimen.

A card photograph stands with the specimen, representing the condition of the limb six months after the operation.

Private R. J., "D," 67th New York, 22: Spottsylvania, 12th May; admitted hospital, Washington, 16th; excised by Surgeon O. A. Judson, U. S. Vols., 17th May; discharged, 12th December, 1864. Limb quite serviceable at date of discharge.

Contributed by the operator.

See 4627, **XXVI.** A. 1, 17.

3161. c. 65. The head and one and a half inches of the shaft of the left humerus, excised. A conoidal ball entered the anatomical neck from the rear, fissured the articular surface and shattered the surgical neck, and remains embedded in the specimen.

Corporal C. M. W., "C," 5th New Hampshire: Ream's Station, Va., 25th August; admitted hospital, Washington, 28th; excised, 30th August; recovered, 16th December, 1864.

Contributed by Acting Assistant Surgeon L. C. Dodge.

See class **XXVII.** B. B. d.

2712. c. 66. The head and one and a half inches of the shaft of the right humerus, fractured in the greater tuberosity and excised. The bullet found in the axilla is attached. The specimen is necrosed and absorbed.

Private F. S., "F," 5th New Hampshire, 21: Cold Harbor, 3d June; admitted hospital, Alexandria, 6th; excised by Surgeon E. Bentley, U. S. Vols., 29th June, 1864. Probably recovered.

Contributed by the operator.

See class **XXVII.** B. B. d.

3487. The excised head and one and a half inches of the shaft of the left humerus. The inner portions of the neck
c. 67. and head have been carried away by gunshot, and erosion is commencing to invade the articular surface. An oblique fracture extends down the shaft.

Lieutenant L. C. C, "A," 15th Michigan, 32: Atlanta, 19th August; admitted Fifteenth Corps Hospital, Marietta, Ga., 24th August; excised on account of secondary hæmorrhage, 4th September; discharged the hospital, recovered, 14th October, 1864.

Contributed by Surgeon J. R. Gove, 127th Illinois.

999. The excised head and one and a half inches of the shaft of the left humerus, shattered by a conoidal ball which
c. 68. entered from above and lodged in the head of the bone. The specimen is completely carious, and shows a partial section somewhat higher than the line of actual excision.

First Sergeant M. D., "E," 2d U. S. Infantry, 25: Fredericksburg, 13th December; admitted hospital, Point Lookout, 16th December, 1862; excised by Assistant Surgeon C. Wagner, U. S. Army, March, 1863. Recovered and was commissioned in the U. S. Army.

Contributed by the operator.

See class **XXVII.** B. B. d.

1998. Excised head and one and a half inches of the shaft of the left humerus. The external portion of the surgical
c. 69. neck is partially fractured, but the continuity of the bone is not destroyed.

Private J. F. L., "A," 5th Michigan: Mine Run, Va., 27th November; excised by Surgeon D. P. Smith, U. S. Vols., near Alexandria, 14th December, 1863; died from pneumonia, 3d January, 1864.

Contributed by the operator.

2274. The head and one and a half inches of the shaft of the left humerus, excised for perforation obliquely down
c. 70. ward by a conoidal ball at the epiphyseal line. The articular surface is badly broken and the shaft fissured.

Lieutenant A. C. B., "I," 64th New York, 21: Spottsylvania, 12th May; admitted hospital, Washington, 16th; excised by Surgeon D. W. Bliss, U. S. Vols., 18th May; leave of absence, doing well, 8th July, 1864.

Contributed by the operator.

2622. Portions of the head and upper extremity of the shaft of the left humerus, excised five months after injury. The
c. 71. specimen is nearly two inches in length and is thoroughly necrosed. The greater portion of the head is not present, apparently having been absorbed. Part of a well-defined sequestrum, itself surrounded by an impoverished involucrum, is embedded in the preparation

Private R. K., "D," 7th Wisconsin: Second Bull Run, 29th August, 1862; excised, Philadelphia, 29th January, 1863. Recovered.

Contributed by Acting Assistant Surgeon L. K. Hall.

2770. The head and two inches of the shaft of the left humerus, excised three and a half months after injury. The
c. 72. bone was shattered at the place of excision by a piece of shell, and many fragments were removed at various times before the operation. The specimen shows the diaphysis much necrosed and the lesser tuberosity fractured. A moderate degree of callus has been thrown out on the lower extremity.

Private J. K., "B," 1st California (probably 72d Pennsylvania): Gettysburg, 3d July; admitted hospital, Philadelphia, 5th September; excised by Acting Assistant Surgeon T. G. Morton, 21st October, 1863. Recovered with good use of arm.

Contributed by the operator.

839. The head and two parallel fragments of the shaft of the left humerus, excised two inches below the surgical
c. 73. neck. The specimen is much necrosed.

Private —— Q., 69th New York, 62: Antietam, 17th September; excised by Assistant Surgeon J. H. Bill, U. S. Army, Frederick, 26th October, 1862. Recovered.

Contributed by the operator.

1091. The head and two inches of the outer half of the shaft of the left humerus, supposed to have been excised. The
c. 74. fracture involves one-fifth of the articular surface and the inner third of the shaft.

Contributed by Surgeon H. Bryant, U. S. Vols.

189. The head and two inches of the shaft of the left humerus, excised by Surgeon D. W. Bliss, U. S. Vols. A bullet
c. 75. entered behind the great tuberosity and escaped through the lesser, producing in a marked degree the splintering attributed to conoidal balls, and illustrating the difference between wounds of entrance and escape.

Contributed by the operator.

2181. The excised head and two inches of the shaft of the left humerus, two months after injury. The head has
c. 76. nearly disappeared under the ulcerative process, and the extremity of the shaft is carious.

Private A. C., "I," 4th U. S. Artillery, 21: Chickamauga, 19th September; admitted hospital, Nashville, 12th October; excised by Assistant Surgeon C. J. Kipp, U. S. Vols., 15th November, 1863. Recovered.

Contributed by the operator.

1208. The excised head and one and three-fourths inches of the shaft of the left humerus, longitudinally fractured and
c. 77. carious. The outer fourth of the head has been destroyed.

Private H. T., "K," 18th Massachusetts, 24: Second Fredericksburg, 3d May; admitted hospital, Washington, 9th; excised, 25th May; died from pyæmia, 10th June, 1863.

Contributed by Surgeon O. A. Judson, U. S. Vols.

See 4293, **XXVII.** B. B. d. 147.

3038. The excised head and two inches of the shaft of the right humerus. A bullet passing through the surgical neck
c. 78. has carried away its inner two-thirds and the lower half of the head, the remainder of which is split into several fragments.

Private S. G. D, "E," 31st Maine, 19: Bottom's Bridge, Va., 11th June; admitted hospital, Washington, 15th; excised by Surgeon R. B. Bontecou, U. S. Vols., 19th June; died from exhaustion following secondary hæmorrhage, 7th July, 1864.

Contributed by the operator.

4350. Six necrosed fragments, representing the head and two inches of the shaft of the left humerus, excised for
c. 79. gunshot of the shoulder.

Private J. M., "A," 205th Pennsylvania, 31: Petersburg, 2d April; admitted hospital, Washington, 5th April; excised by Surgeon R. B. Bontecou, U. S. Vols., 9th May; discharged, 23d September, 1865.

Contributed by the operator.

3465. The excised head and two inches of the shaft of the right humerus. A bullet passed through the greater
c. 80. tuberosity grooving the head, which, in the specimen, is completely carious. A longitudinal fissure extends down the shaft.

Private S. J. C., "C," 111th New York: Wilderness, 5th May; admitted hospital, Baltimore, 16th May; excised, 21st June, 1864. Recovered.

Contributed by Acting Assistant Surgeon G. W. Fay.

68. Excised head and two inches of the shaft of the right humerus, extremely shattered by perforation. A section
c. 81. of the shaft, not including all the fragments, has been made three-fourths of an inch above the final one.

Private W. J. P., "E," 85th New York, 34: Boydton Plank Road, Va., 29th March; admitted hospital, Washington, 2d April; excised by Assistant Surgeon H. Allen, U. S. Army, 5th April; discharged the service, 1st June, 1865.

Contributed by the operator.

3628. The head and two inches of the shaft of the right humerus, excised for partial fracture at
c. 82. the surgical neck with the articulation opened. An oblique fracture extends down the shaft, and an independent longitudinal fissure, nearly two inches in length, occupies the posterior bicipital ridge. *See figure* 47.

Corporal J. H., "F," 1st Pennsylvania Cavalry: Weldon R. R., Va., 23d August; admitted hospital, Philadelphia, 29th August; excised by Acting Assistant Surgeon W. P. Moon, 5th September; died exhausted, 27th September, 1864.

Contributed by Acting Assistant Surgeon J. A. C. Hanly.

FIG. 47. Excised head and a portion of shaft of right humerus. *Spec.* 3628.

1. The excised head and two inches of the shaft of the right humerus. A conoidal ball
c. 83. entering the base of the great tuberosity has shattered the surgical neck and extensively fissured the articular surface.

Private R. B. M., "I," 7th Michigan: White Oak Swamp, Va., 30th June; excised by Acting Assistant Surgeon D. N. Rankin, Washington, 19th July; returned home nearly healed, October, 1862.

Contributed by the operator.

185. The excised head and two inches of the shaft of the left humerus. The upper two-thirds of the epiphysis have
c. 84. been carried away and the remainder is broken into many fragments, but the diaphysis is uninjured.

Private L. G. S., "I," 17th New York, 26: while carrying the regimental colors off the field was wounded by a buckshot in the left forearm, by a pistol ball in the left shoulder, and in the left thigh and leg by conoidal balls, Second Bull Run, 30th August; admitted hospital, Washington, 1st September; excised by Surgeon D. W. Bliss, U. S. Vols., 14th September; discharged from service with a useful arm, 31st October, 1862.

Contributed by the operator.

4003. The head and two inches of the shaft of the left humerus, excised for perforation of the surgical neck between
c. 85. the tuberosities. An oblique fracture, bordered by necrosed bone, extends through the surgical neck.

Private L. R., "E," 4th U. S. Colored Troops, 29: Deep Bottom, Va., 29th September; admitted hospital, Portsmouth, Va., 5th November; excised, 10th; died exhausted, 14th November, 1864.

Contributed by Assistant Surgeon J. H. Frantz, U. S. Army.

2282. The head and two inches of the shaft of the left humerus, excised for fracture of the surgical neck by a conoidal
c. 86. ball.

Private J. S., "G," 115th Pennsylvania, 30: Spottsylvania, 12th May; admitted hospital, Washington, 18th; excised by Surgeon D. W. Bliss, U. S. Vols., 19th May; died, 30th June, 1864.

Contributed by the operator.

1006. The head and two inches of the shaft of the left humerus, excised. The inner fifth of the head and half of the
c. 87. surgical neck have been carried away. A complete fracture extends through the head, leaving only the outer inferior fourth attached to the shaft, down which three longitudinal fractures run.

Contributed by Acting Assistant Surgeon George F. Shrady.

633. The head and a portion of two inches of the shaft of the right humerus, excised. The inner part has been
c. 88. carried away nearly longitudinally. The specimen shows a necrosed internal portion of the head nearly separated, the external surface of the shaft covered with some callus, and the articular surface eroded and fissured. A few shreds of clothing yet remain in the surgical neck.

Private J. K. C., "E," 10th Pennsylvania Reserves: Fredericksburg, 13th December, 1862; excised by Surgeon John Wilson, U. S. Vols., Washington, 7th January, 1863. Recovered.

Contributed by the operator.

2724. The right scapula and humerus. The head and two inches of the shaft of the humerus, the coracoid process
c. 89. and the head and neck of the scapula, have been excised. The epiphysis of the humerus is thoroughly carious, a small ring of necrosed articular surface remaining at the superior portion. The glenoid cavity is eroded and carious, and the extremity of the acromion has been broken, as if by violence after death. The specimen gives no evidence of any considerable violence directly inflicted, and the original injury was probably a gunshot wound that opened the joint, chipping the head of the humerus. The excision was evidently performed at a date remote from that of the wound.

Received, without history, from Beaufort, S. C.*

1180. The head and two inches of the shaft of the right humerus, excised for comminution by gunshot through the
c. 90. surgical neck.

Private G. R., "E," 12th New Jersey, 40: Chancellorsville, 3d May; admitted hospital, Washington, 6th; excised by Assistant Surgeon C. A. McCall, U. S. Army, 25th May, 1863. Recovered.

Contributed by Acting Assistant Surgeon J. Winslow.

See 4629, **XXVI.** A. 3. 123.

3094. The head and two and a half inches of the shaft of the right humerus, excised for gunshot perforation through
c. 91. the epiphyseal junction. A vertical fracture extends through the head, and an oblique one down the shaft.

Private W. P., "B," 92d New York, 24t Second Fair Oaks, 27th October; admitted hospital, Portsmouth, Va., 29th October; excised, 3d November; died from secondary hæmorrhage and exhaustion, 22d November, 1864.

Contributed by Assistant Surgeon J. H. Frantz, U. S. Army.

2937. The head and two and a half inches of the shaft of the left humerus, excised for gunshot. A bullet has passed
c. 92. through the surgical neck, comminuting the shaft as far as excised, and fracturing both the tuberosities and the inferior portion of the head.

Private B. McC., "D," 63d New York, 30: Petersburg, 16th June; admitted hospital, Washington, 22d; excised by Surgeon O. A. Judson, U. S. Vols., 23d June; died from exhaustion following hæmorrhage, 8th July, 1864.

Contributed by the operator.

3624. The head and two and a half inches of the shaft of the left humerus, excised for an oblique
c. 93. fracture with comminution through the surgical neck. The margins of the fractures are necrosed, and a very thin deposit of callus on the shaft has occurred. *See figure* 48.

Private L. T., "A," 5th Pennsylvania Cavalry, 30: Petersburg, 15th June; admitted hospital, Philadelphia, 21st June; excised by Acting Assistant Surgeon W. P. Moon, 1st July; died exhausted, 14th July, 1864.

Contributed by the operator.

FIG. 48. Excised head and portion of shaft of left humerus. *Spec.* 3624.

2420. The head and two and a half inches of the shaft of the left humerus, excised for destruction
c. 94. of the head and oblique fracture of the surgical neck.

Captain D. L., "I," 4th Vermont, 26: Wilderness, 5th May; admitted hospital, Washington, 25th; excised by Surgeon D. W. Bliss, U. S. Vols., 1st June; died, 6th June, 1864.

Contributed by the operator.

* NOTE to 2724.—*By the following, obtained while this page was in type, it appears no excision was performed:*

Private L. J., "H," 34th U. S. Colored Troops: contusion by piece of plank struck by shell, Fort Wagner, S. C.; "necrosis set in insidiously resisting all treatment, the patient dying of debility, 25th April, 1864. Specimen mutilated by Dr. ——, who performed the *post mortem*."

Contributed by Assistant Surgeon E. D. Buckman, U. S. Vols.

582. c. 95. The head and two and a half inches of the shaft of the right humerus, excised. The shaft is thoroughly shattered, and a fissure extends into the articular surfaces. This specimen is unique in exhibiting an island of sound bone at the superior articular surface, completely surrounded by commencing caries.

Private A. B., "A," 37th North Carolina (Rebel): Fredericksburg, 13th December; excised by Surgeon H. Bryant, U. S. Vols., Washington, 29th December, 1862.

Contributed by the operator.

1688. c. 96. The head and two and a half inches of the shaft of the left humerus, excised nine months after injury. The specimen is greatly necrosed, and large portions of it have been destroyed by ulceration. A moderate involucrum of the shaft contains two large cloacæ.

Sergeant J. K., "E," 6th U. S. Infantry, 41: Fredericksburg, 14th December, 1862; excised by Surgeon D. W. Bliss, U. S. Vols., Washington, 10th September, 1863.

Contributed by the operator.

2394. c. 97. The head and three inches of the shaft of the right humerus, excised. A conoidal ball entered the base of the greater tuberosity and passed directly through, shattering the surgical neck with several longitudinal fractures. The greater part of the shaft is necrosed. The articular surface is not materially injured.

Captain F. W., "E," 49th Pennsylvania: Spottsylvania, Va., 12th May; admitted hospital, Washington, 25th; excised by Surgeon D. W. Bliss, U. S. Vols., 31st May; granted leave of absence, 30th August, 1864.

Contributed by the operator.

2112. c. 98. The head and nearly three inches of the shaft of the left humerus, excised for comminution of the upper third by a conoidal ball which previously passed through the left maxilla. The epiphysis is uninjured.

Private L. H. S., "G," 9th Massachusetts, 21: accidentally wounded, 10th January; admitted hospital, Washington, 2d February; excised, 16th; died from pyæmia, 27th February, 1864.

Contributed by Surgeon O. A. Judson, U. S. Vols.

See class **II.** A. B. f.

3304. c. 99. The head and three inches of the shaft of the left humerus, excised for an oblique fracture with comminution of the surgical neck. Only one small fissure crosses the epiphyseal line. The shaft is covered with a very thin osseous layer.

Contributed by Surgeon D. P. Smith, U. S. Vols.

2438. c. 100. The head and three inches of the shaft of the right humerus, excised one month after injury. The epiphysis is uninjured, but the surgical neck is comminuted and completely necrosed.

Private G. J., "I," 9th U. S. Colored Troops, 17: Deep Bottom, Va., 29th September; admitted hospital, Portsmouth, Va., 5th October; excised for secondary hæmorrhage, 27th October, 1864. Recovered.

Contributed by Assistant Surgeon J. H. Frantz, U. S. Army.

1674. c. 101. The head and three inches of the shaft of the right humerus, badly shattered by perforation through the epiphyseal junction, and excised. Commencing erosion has invaded the articular surface and a moderate periosteal deposit exists on the shaft.

Private W. J. W., "E," 13th New Hampshire, 19: Deep Bottom, Va., 16th August; excised Portsmouth, Va, 30th August; died from exhaustion following secondary hæmorrhage, 14th September, 1864.

Contributed by Assistant Surgeon J. H. Frantz, U. S. Army.

620. c. 102. The head and nearly three inches of the shaft of the left humerus, excised for fracture by a conoidal ball which has lodged at the line of excision. The epiphysis is uninjured.

Contributed by Assistant Surgeon G. M. McGill, U. S. Army.

See 4629, **XXVI.** A. 3, 126.

See class **XXVII.** B. B. d.

4236. c. 103. A small portion of the head and three inches of the shaft of the right humerus, excised. A part of the head has been carried away by gunshot, the fracture extending through the surgical neck. The upper extremity of the specimen is much necrosed.

Sergeant W. McC., "L," 24th New York Cavalry: Dinwiddie C. H., Va., 3d March; excised by Surgeon E. Griswold, U. S Vols., 8th June; discharged 9th November, 1865.

Contributed by the operator.

3262. c. 104. The excised head and three inches of the shaft of the left humerus, shattered by a conoidal ball passing through the epiphyseal junction. The extremities of the remaining fragments are necrosed and a minute deposit has occurred of the shaft.

Private W. M., 1st Maine Heavy Artillery: Petersburg, 21st June; admitted hospital, Washington, 4th July; excised by Acting Assistant Surgeon F. G. H. Bradford, 17th; died, 24th July, 1864.

Contributed by the operator.

2944. The head and three inches of the shaft of the right humerus, excised for fracture of the surgical neck by a
c. 105. conoidal ball, which is placed in the specimen as it lodged. The epiphysis is uninjured, but the shaft where struck by the bullet is shattered.

Private J. S. B., "G," 45th Pennsylvania: Cold Harbor, 3d June; excised by Surgeon O. A. Judson, U. S. Vols., Washington, 20th June; died of chronic diarrhœa, 16th August, 1864.

Contributed by the operator.

See 4628, **XXVI.** A. 2, 100.

See class **XXVII.** B. B. d.

4094. The head and three inches of the shaft of the left humerus, excised. A ball has carried away the inner portion
c. 106. of the surgical neck of the humerus. The articular surface is destroyed by ulceration, and the shaft is fractured longitudinally. The scapula, attached, shows the lower portion of the glenoid cavity carried away and the infra-spinous portion shattered. Traces of periosteal inflammation exist on both surfaces of the scapula.

Private L. K., "G," 211th Pennsylvania: Petersburg, 3d April; admitted hospital, Washington, 8th; excised by Surgeon D. W. Bliss, U. S. Vols., 14th; died, 16th April, 1865.

Contributed by Acting Assistant Surgeon C. H. Bowen.

1118. The head and three and a half inches of the shaft of the right humerus, excised. The anterior face of the
c. 107. shaft and posterior portion of the head are carried away, and the articular surface is split in two vertically.

Private E. H. W., "G," 6th Maine, 24: Second Fredericksburg, 3d May; admitted hospital, Washington, 8th; excised by Assistant Surgeon C. A. McCall, U. S. Army; discharged, recovered, 13th November, 1863.

Contributed by the operator.

1177. The head and three and a half inches of the shaft of the left humerus, excised for extreme shattering of the
c. 108. diaphysis by a musket ball. The articular surface is uninjured.

Private D. R., "I," 8th New Jersey, 18: Second Fredericksburg, 3d May; admitted hospital, Washington, 9th; excised by Assistant Surgeon C. A. McCall, U. S. Army, 16th May, 1863. Recovered without use of the arm.

Contributed by Acting Assistant Surgeon E. Coues.

2355. The head and three and a half inches of the shaft of the right humerus, excised for complete comminution of the
c. 109. surgical neck by a conoidal ball.

Private W. H., "D," 64th New York: Spottsylvania, 12th May; admitted hospital, Washington, 24th; excised by Acting Assistant Surgeon H. M. Dean, 27th May; died from pyæmia, 7th June, 1864.

Contributed by Acting Assistant Surgeon E. L. Bliss.

2625. The head and three and a half inches of the shaft of the left humerus, excised for a comminuted fracture of the
c. 110. surgical neck. A battered ball is lodged in the specimen. The epiphysis is not implicated. There are faint traces of periosteal disturbance on the shaft.

Received, without history, after Chancellorsville.

See 4629, **XXVI.** A. 3, 122.

See class **XXVII.** B. B. d.

3309. The head and three and a half inches of the shaft of the left humerus, excised for shattering of the surgical
c. 111. neck and splintering of the shaft.

Private D. W. H., "D," 13th Tennessee Cavalry: Fort Pillow, Tenn., 12th April; excised by Surgeon H. Wardner, U. S. Vols., Mound City, Ill., 22d April; died, suffering under two other very severe wounds, exhausted, 4th May, 1864.

Contributed by the operator.

2719. The head and three and a half inches of the shaft of the right humerus, excised for fracture just below the
c. 112. surgical neck. At the place of fracture the bone is necrosed, with no attempt at repair.

Private F. K., 14th U. S Infantry: probably Spottsylvania, 12th May; admitted hospital, Washington, 26th May; excised by Assistant Surgeon J. C. McKee, U. S. Army, 24th June; died from pyæmia, 30th June, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

1875. The head and three and a half inches of the shaft of the left humerus, excised ten and a half months after
c. 113. injury for perforation by gunshot of the surgical neck, followed by necrosis of the internal structures and a decided deposit of new bone externally. The specimen shows a portion of the shaft to have been removed by a trephine, of which there is no account in the history.

Private T. P., "A," 3d Michigan, 20: Fair Oaks, 31st May, 1862; excised by Acting Assistant Surgeon J. H. Packard, Philadelphia, 9th April; died from pneumonia, 22d April, 1863.

Contributed by the operator.

See 4628, **XXVI.** A. 2, 100.

658. The excised head and three and a half inches of the shaft of the right humerus. A fragment of shell
c. 114. comminuted the bone above and below the surgical neck. The greater part of the articular half of the head, divided into three fragments, remains. Longitudinal fractures extend down the shaft the length of the specimen. Superficial osseous deposits occur on the diaphysis, and at one point a line of demarcation is forming.

Private G. B., "C," 11th New Hampshire: Fredericksburg, 13th December; admitted hospital, Washington, 26th excised by Surgeon D. W. Bliss, U. S. Vols., 30th December, 1862.

Contributed by the operator.

387. The head and outer portion of the shaft of the right humerus three and a half inches in
c. 115. length, excised. The articular surface was not injured, but the surgical neck was comminuted by a round ball. The specimen shows only the head and the large fragments attached. *See figure* 49.

Private F. S., 37th New York, 21: White Oak Swamp, Va., 30th June; a prisoner until admitted hospital, Philadelphia, 27th July; excised by Acting Assistant Surgeon S. D. Gross, 1st August, 1862. Discharged with good use of the limb.

Contributed by the operator.

See 4629, **XXVI.** A. 3, 124.

FIG. 49. Head and portion of shaft of right humerus, excised. *Spec.* 387.

804. A wet preparation of the shoulder joint, one month after the excision of the head and three
c. 116. and a half inches of the shaft of the humerus. The position of the removed bone was entirely filled up by coaptation and granulations, except for an inch and a half above the sawn extremity. A fragment of bone of two inches, which had been left attached by periosteum, was not necrosed, but had much ossific matter poured out about it. Superficial necrosis had occurred over the glenoid cavity.

Private E. B., 69th New York, 32: Antietam, 17th September; admitted hospital, Frederick, 23d; excised by Acting Assistant Surgeon J. H. Bartholf, 28th September; died from pleuro-pneumonia, 27th October, 1862.

Contributed by the operator.

See 787, **V.** A. b. c. 117.

787. The head and three and a half inches of the shaft of the right humerus, excised for comminution below the
c. 117. surgical neck. The articular surface was not injured. An elliptical fragment of two inches in length remained in the wound, attached to the muscle by periosteum.

Private E. B., 69th New York, 32: Antietam, 17th September; admitted hospital, Frederick, 23d; excised by Acting Assistant Surgeon J. H. Bartholf, 28th September; died from pleuro-pneumonia, 28th October, 1862.

Contributed by the operator.

See 804, **V.** A. b. c. 116.

3369. The head and four inches of the shaft of the left humerus. A conoidal ball shattered the bone just below the
c. 118. surgical neck, without opening the joint, and perforated the left thorax. Several of the fragments are partially united by callus, but there has been no serious attempt at repair.

Private S. S., "H," 49th Ohio, 29: Dallas, Ga., 27th May; admitted hospital, Nashville, 8th July; excised, 19th; died, 26th July, 1864.

Contributed by Surgeon R. L. Stanford, U. S. Vols.

3611. The head and four inches of the shaft of the left humerus, excised for comminution below the
c. 119. surgical neck. *See figure* 50.

Private J. L., "C," 6th Connecticut, 22: Bermuda Hundred Lines, Va., 17th June; admitted hospital, Philadelphia, 21st June; excised for secondary hæmorrhage, by Acting Assistant Surgeon J. H. Jamar, 4th July, 1864.

Contributed by Surgeon Joseph Hopkinson, U. S. Vols.

2468. The excised head and four inches of the shaft of the right humerus, shattered at the surgical
c. 120. neck and the inferior portion of the epiphysis.

Sergeant H. W. C., "H," 116th Pennsylvania: Spottsylvania, 12th May; admitted hospital, Washington, 28th; excised by Surgeon G. L. Pancoast, U. S. Vols., 29th May; died, 12th August, 1864.

Contributed by the operator.

382. The head and four inches of the shaft of the right humerus, excised for a comminuted fracture
c. 121. of the upper third of the shaft by a conoidal ball which lodged within the thorax. The epiphyseal portion is not involved.

Private M. F., 88th Pennsylvania: Antietam, 17th September; excised by Assistant Surgeon A. H. Smith, U. S. Army, Frederick, 28th September; died from pneumonia following the wound of the lung, 9th October, 1862.

Contributed by the operator.

FIG. 50. Head and portions of shaft of left humerus, excised. *Spec.* 3611.

336. The excised head and four inches of the shaft of the left humerus. The shaft is broken into large fragments, but
c. 122. the epiphysis is intact.

Private F. B., "B," 86th New York: probably Second Bull Run, 30th August; excised by Surgeon J. H. Brinton, U. S. Vols., 5th September; admitted hospital, Alexandria, 24th October; discharged the service, 7th November, 1862.

Contributed by Surgeon John E. Summers, U. S. Army.

1262. The head and four and a half inches of the shaft of the left humerus, excised two weeks after injury. The head,
c. 123. uninjured by the direct impact of the ball, is thoroughly carious; the remainder of the specimen is shattered and necrosed with very trivial osseous deposits.

Private H. E., "H," 28th Pennsylvania: Chancellorsville, 2d May; admitted hospital, Washington, 7th; excised by Surgeon D. W. Bliss, U. S. Vols., 17th May, 1863; transferred to Pittsburgh, 22d February; discharged, 1st June, 1864.

Contributed by the operator.

2360. The head and four and a half inches of the shaft of the right humerus, excised for comminution of the upper third.
c. 124. A fracture occupies the anatomical neck in its outer half.

Private L. B., "E," 7th Maine: excised by Acting Assistant Surgeon H. H. Ensign, Washington, 26th May; died, 8th June, 1864.

Contributed by Surgeon N. R. Mosely, U. S. Vols.

1941. The upper portion of the left humerus, of which five inches were removed sixteen weeks after the head of the
c. 125. bone was shattered by a conoidal ball. The head and neck were carious and broken down and could not be preserved. The specimen shows a large fragment attached to the shaft by an indifferent deposit of callus.

Private P. B., "K," 28th Massachusetts, 21: Gettysburg, 2d July; excised, 20th October, 1863. Recovered.

Contributed by Acting Assistant Surgeon E. P. Townsend.

3804. The head and five inches of the shattered shaft of the right humerus, excised. The epiphyseal portion is uninjured,
c. 126. but the remainder of the specimen is much broken.

Captain D. G. R., "E," 9th U. S. Colored Troops, 28: Deep Bottom, Va., 29th September; admitted hospital, Fort Monroe, 3d October, 1864; excised by Surgeon D. G. Rush, 101st Pennsylvania, the same day. Made a good recovery.

Contributed by the operator.

3289. Nearly the upper half of the left humerus, excised for gunshot. A conoidal ball is firmly
c. 127. impacted just below the head, posteriorly the articular surface is eroded, a longitudinal fracture occupies the bicipital groove, and the posterior portion of the shaft is shattered. *See figure* 51.

Private G. D. S., "F," 17th Vermont: Petersburg, 30th September; admitted hospital, Alexandria, 13th October; excised by Surgeon Edwin Bentley, U. S. Vols., 14th; died from secondary hæmorrhage, 19th October, 1864.

Contributed by the operator.

See 4627, **XXVI.** A. 1, 37.

See class **XXVII.** B. B. d.

FIG. 51. Head and large portion of shaft of left humerus with impacted bullet, excised. *Spec.* 3289.

155. The excised head and six inches of the shaft of the left humerus. The epiphysis is uninjured,
c. 128. but the diaphysis is thoroughly comminuted as though by shell. The shaft is markedly necrosed with commencing exfoliations

Private N. N., 54th New York: Second Bull Run, 28th August; admitted hospital, Washington, 5th September; excised, 25th September, 1862. Recovered.

Received from Douglas General Hospital.

3605. The head and two and a half inches of the shaft of the right humerus, excised for perforation
c. 129. by gunshot through the greater tuberosity. Both the epiphysis and the shaft are well shattered.

Captain G. H. B., "D," 29th Wisconsin: Pleasant Hill, La., 7th April; admitted hospital, New Orleans, 14th, excised by Surgeon Francis Bacon, U. S. Vols., 17th April, 1864. The arm is one inch shortened; has no control over shoulder joint; can use elbow and wrist joints and hand; can write, but has comparatively little strength, 19th April, 1866

Contributed by the operator.

For other illustrations, see 1090, **IV.** A. B. cy. 7; 2838, **V.** A. A. c. 3; 3462, **XXI.** A. B. A. 5; 2162, **XXI.** A. B. A. 6; 4628, **XXVI.** A. 2, 51; 4629, **XXVI.** A. 3, 145, 146.

d. AMPUTATIONS.

2175. Six inches of the shaft of the left humerus, showing a consolidated gunshot fracture, from an amputation at the
d. 1. shoulder joint for secondary hæmorrhage and gangrene. The union is excellent, although some necrosed fragments, sources of irritation, are yet imprisoned. The head of the humerus was improperly removed in mounting the specimen.

Private F. LaF., "G," 100th Illinois, 26: Chickamauga, 19th September; amputated, Nashville, December, 1863. Recovered.
Contributed by Surgeon John W. Foye, U. S. Vols.

3299. The upper two-thirds of the left humerus, amputated at the shoulder joint for secondary hæmorrhage. The bone
d. 2. was obliquely fractured with longitudinal splintering at the junction of the upper thirds, and at the time of the operation the articulation was destroyed by suppuration. The shaft is covered with a thin friable deposit.

Private M. M. C., "C," 56th Massachusetts, 18: wounded, 18th May; amputated, near Alexandria, 8th June; died, 4th July, 1864.
Contributed by Surgeon D. P. Smith, U. S. Vols.

267. The upper third of the right humerus, disarticulated for a sloughing stump after amputation at the upper third.
d. 3. The stump shows no attempt at repair to have occurred, beyond a very slight periosteal thickening nearthe extremity.

Corporal F. A. A., "G," 20th Massachusetts: Antietam, 17th September; admitted hospital, with amputated arm, Chester, Penna., 2d October; disarticulated, 12th; died from pyæmia, 25th October, 1862.
Contributed by Acting Assistant Surgeon Lewis Fisher.
See class **VI.** A. B. f.

1044. The upper third of the right humerus, comminuted by a conoidal ball which perforated the surgical neck, and
d. 4. disarticulated for secondary hæmorrhage four weeks after the injury. A slight amount of callus is thrown out from the lower extremity without union. Two fissures extend into the head.

Private S. W., "A," 77th Pennsylvania, 19: shot in the act of desertion, 2d March; admitted hospital, Smoketown, Md., 24th; amputated for secondary hæmorrhage, by Surgeon B. A. Vanderkeift, U. S. Vols., 30th March, 1863. Recovered.
Contributed by the operator.

2637. The lower two-thirds of the left humerus, amputated at the shoulder joint on account of extensive laceration and
d. 5. much sloughing following a fracture at the junction of the lower thirds. The fracture of the bone is remarkable in the absence of comminution, and is an example of the transverse oblique. A fissure extends in the outer border of the upper fragment. The specimen was accidentally sawn through in the middle third at the time of mounting, and the upper portion is lost.

Private A. C., "G," 15th New Jersey: admitted hospital, Washington, 7th June; amputated at the shoulder joint, 20th June, 1864. Recovered.
Contributed by Acting Assistant Surgeon J. Butterbaugh.

3608. The right humerus, amputated at the shoulder joint for necrosis of the shaft after excision of two and one-half
d. 6. inches of the upper third. The upper extremity is somewhat rounded, but spongy. A large sequestrum, around which there is an exceedingly imperfect and scanty involucrum, occupies nearly the entire shaft.

Private C. G., "C," 169th New York, 32: Cold Harbor, 1st June; excised, White House, Va., 6th June; removed to Alexandria a few days afterward, and admitted hospital, Albany, 27th September, 1864; amputated by Acting Assistant Surgeon Pearce, 12th January; died, 3d March, 1865.
Contributed by Acting Assistant Surgeon Oscar H. Young.
See class **VI.** A B. c.

3331. The right humerus, from which three inches of the shaft has been excised, the arm subsequently amputated, and
d. 7. disarticulation at the shoulder joint finally performed. The lower portion of the specimen, representing the condition nearly four and a half months after the injury and excision, exhibits a copious deposit of spongy new bone surrounding a nearly detached sequestrum of several inches. The shaft in the upper fragment is necrosed at the extremity and the articular surface is eroded.

Corporal J. M., "E," 22d Massachusetts, 38: Wilderness, 5th May; excised, 6th; admitted hospital, Washington, 28th May; amputated for secondary hæmorrhage, 17th September; disarticulated for secondary hæmorrhage, 19th September, 1864; died from exhaustion following gangrene, the same month.
Contributed by Surgeon R. B. Bontecou, U. S. Vols.
See classes **VI.** A. B. c.; **VI.** A. B. d.

3056. The upper half of the left humerus, amputated at the shoulder joint. A segment one by one and a half inches,
d. 8. immediately below the greater tuberosity, is carried away and several longitudinal fissures, marked by lines of necrosis, exist with a necrosed condition of the anatomical neck.

Private J. O., "F," 63d Pennsylvania, 33: admitted hospital, Washington, 28th June; amputated by Surgeon R. B. Bontecou, U. S. Vols., 17th July; died, 20th July, 1864.

Contributed by the operator.

3078. The upper third of the right humerus, which has been amputated at the shoulder joint. The posterior half of the
d. 9. head was carried away by a conoidal ball, and an oblique partial fracture extends into the surgical neck.

Private J. M., "I," 1st Maine Heavy Artillery: Petersburg, 12th June; amputated by Assistant Surgeon J. S. Smith, U. S. Army, City Point, 20th; admitted hospital, Washington, 28th June; died, 1st July, 1864.

Contributed by the operator.

2822. The right humerus shattered in the upper two-thirds of the shaft, with the outer condyle split off, by a ball that
d. 10. entered near the clavicle and escaped three inches below the elbow, opening that joint.

Private N. A. S., "B," 100th Pennsylvania, 25: Cold Harbor, 2d June; admitted hospital, Washington, 8th; amputated, 11th; furloughed for thirty days, 27th June, 1864.

Contributed by Assistant Surgeon Alex. Ingram, U. S. Army.

2573. The upper two-thirds of the right humerus, amputated at the shoulder joint for extensive fractures of the shaft
d. 11. seven inches in length. A conoidal ball entered below the left ear, fractured the ramus of the inferior maxilla, escaped on a line with and two inches to the right of the pomum Adami, and entered and passed for five inches through the medullary canal of the humerus.

Sergeant C. F., "K," 122d New York, 39: Cold Harbor, 3d June; admitted hospital, Washington, 7th; amputated by Acting Assistant Surgeon H. M. Dean, 18th; died, 23d June, 1864.

Contributed by the operator.

See class **II.** A. B. f.

347. The upper third of the left humerus, disarticulated. A small
d. 12. conoidal ball entered between the tuberosities and perforated the head, exposing its point in the anatomical neck opposite. Fissures extend into the head and down the neck from the wound of entrance. *See figures* 52 *and* 53.

Corporal E. K., DeKalb Regiment, New York Volunteers: amputated some days after the injury, by Assistant Surgeon J. W. S. Gouley, U. S. Army, Washington, 26th July; died, 28th July, 1861.

Contributed by the operator.

See class **XXVII.** B. B. d.

4081. The upper two-thirds of the left humerus, amputated at the
d. 13. shoulder joint. The middle third of the bone is very badly comminuted and necrosed.

Private J. A. S., "K," 1st Maine: admitted hospital, Washington, 30th March; amputated for secondary hæmorrhage, by Surgeon D. W. Bliss, U. S. Vols., 15th April; died, 23d April, 1865.

Contributed by Acting Assistant Surgeon H. E. Woodbury.

FIG. 52. Portion of disarticulated humerus showing wound of entrance. *Spec.* 347.

FIG. 53. Portion of disarticulated humerus showing apex of embedded ball. *Spec.* 347.

2395. The left humerus, comminuted in the upper third by a ball passing transversely, and amputated at the shoulder
d. 14. joint. The ulna from the left forearm, splintered in the middle third by another bullet, is attached.

Corporal J. G. R., "A," 15th New Jersey, 19: Spottsylvania C. H., 12th May; entered hospital, Washington, 26th; amputated by Surgeon D. W. Bliss, U. S. Vols., 31st May; died, 7th June, 1864.

Contributed by the operator.

See class **VIII.** A. B. d.

78. The right humerus, shattered at the surgical neck, with fractures through the outer portion of the anatomical
d. 15. neck and the upper third of the shaft, amputated at the shoulder joint, after Fredericksburg.

Contributed by Assistant Surgeon J. T. Duffield, 9th Indiana.

2917. The lower two-thirds of the left humerus, amputated at the shoulder joint after shattering of the upper third.
d. 16. The upper extremity of the bone has not been preserved. The specimen is necrosed at the point of fracture with no attempt at repair.

Private M. C., "C," 56th Massachusetts, 17: wounded, 18th May; admitted hospital, Washington, 25th May; amputated at the shoulder joint for secondary hæmorrhage, 8th June; died from pyæmia, 4th July, 1864.

Contributed by Acting Assistant Surgeon D. W. Prentiss.

3595. The left humerus, amputated at the shoulder joint for secondary hæmorrhage after excision of two inches in the
d. 17. upper third. No conservative effort followed the excision. One inch of the extremity of the lower fragment is banded by necrosis.

Private M. H., "D," 49th New York: Wilderness, 5th May; excised in the field; admitted hospital, 25th; amputated at the shoulder joint for secondary hæmorrhage and died, 26th May, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See class **VI.** A. A. c.

3385. The upper two-thirds of the right humerus, amputated at the shoulder joint. There is an extensive oblique
d. 18. fracture of the upper half with comminution from a carbine ball.

Private J. B. T., "K," 21st New York Cavalry: wounded, 22d May; admitted hospital, Sandy Hook, Md., 28th; amputated by Surgeon Jerningham Boone, 1st Maryland Potomac Home Brigade, 30th May; discharged, 25th October, 1864.

Contributed by the operator.

3706. The upper half of the left humerus, amputated at the shoulder joint. A fissure exists on the anterior face of the
d. 19. shaft, and the head of the bone is completely destroyed by caries.

Private I. D., "E," 13th Ohio Cavalry: a conoidal ball passed through the upper part of the arm, Poplar Springs, Va., 8th October; amputated and died, Beverly, N. J., 29th October, 1864.

Contributed by Assistant Surgeon C. Wagner, U. S. Army.

3450. The upper half of the left humerus, amputated at the shoulder joint, about four weeks after injury. The upper
d. 20. extremity of the shaft is comminuted and necrosed, and the head is partially absorbed. A trivial deposit of new bone has occurred upon one fragment.

Private J. R. H., "B," 44th New York, 21: Malvern Hill, 1st July, 1862; amputated by Assistant Surgeon J. S. Billings, U. S. Army, Washington. Recovered.

Contributed by the operator.

1700. The upper third of the left humerus, grooved by a conoidal ball in the posterior portion of the anatomical neck
d. 21. and amputated at the shoulder joint. The articular surface has been destroyed by ulceration.

Private J. S., "H," 6th Illinois Cavalry: wounded, 12th May; admitted hospital, Memphis, Tenn., 1st July; amputated by Surgeon J. G. Keenon, U. S. Vols., 10th July, 1863. Recovered.

Contributed by the operator.

1213. The upper two-thirds of the right humerus, amputated at the shoulder joint for an oblique fracture four and a
d. 22. half inches in length, with slight comminution, from a bullet which entered near the middle of the spine of the right scapula and impinged on the inner surface two inches below the surgical neck. The fracture did not reach the epiphyseal line by one inch.

Private W. L., "I," 26th Wisconsin, 19: Chancellorsville, 3d May; admitted hospital, Washington, 9th; amputated by Surgeon O. A. Judson, U. S. Vols., 15th May, 1863. Recovered.

Contributed by the operator.

See 1516, **XXVII.** B. B. d. 118.

1701. The upper third of the right humerus, amputated at the shoulder joint. The outer portion of the head of the
d. 23. bone is shattered and the articular surface eroded. The glenoid cavity was found ulcerated and the diseased bone was removed. A section of the head has been made after removal.

Private L. F., "F," 48th Ohio, 18: Champion's Hills, Miss., 4th June; amputated by Surgeon J. G. Keenon, U. S. Vols., 14th June, 1863. Recovered.

Contributed by the operator.

2082. The upper third of the left humerus, amputated at the shoulder joint. The specimen shows a nearly transverse
d. 24. fracture at the surgical neck and a longitudinal fracture of the shaft for three inches inflicted by a conoidal ball. Incipient caries is seen along the lines of fracture.

Private B. P., "E," 17th Wisconsin, 43: Vicksburg, 19th May; admitted hospital, Memphis, 1st June; amputated, 3d; died, 7th June, 1863.

Contributed by Assistant Surgeon W. Watson, U. S. Vols.

58. The upper two-thirds of the right humerus, shattered below the surgical neck and amputated at the shoulder joint.
d. 25. The wrist was shattered by another ball.
One of the Pennsylvania Bucktails.

Contributed by Assistant Surgeon J. S. Billings, U. S. Army.

441. The right humerus, amputated at the shoulder joint for a comminuted fracture in the upper third from a conoidal
d. 26. ball. The highest point of fracture is one inch below the great tuberosity.

Private L. R., "E," 12th Pennsylvania Reserves: South Mountain, 14th September; admitted hospital, Frederick, 28th September; amputated by Surgeon H. S. Hewit, U. S. Vols., 2d October; discharged the service, 15th December, 1862.

Contributed by the operator.

1226. The left humerus, amputated at the shoulder joint for a fracture in the middle third, the bullet having passed
d. 27. upward and carried a spicula of bone into the axilla. The battered ball is mounted with the specimen.

Private B. M., "D," 28th Massachusetts: Cross Farms, (Second Bull Run?) 30th August; remained on the field eight days and admitted hospital, Washington, 8th September; arm disarticulated by Acting Assistant Surgeon Geo. McCoy, 9th September; completely healed and patient died, 31st October, 1862.

Contributed by the operator.

See class **XXVII.** B. B. d.

544. The right humerus, amputated at the shoulder joint for an extensive comminuted fracture in the middle third.
d. 28. Private T. C., "E," 136th Pennsylvania: probably Fredericksburg, 13th December; admitted hospital, Washington, 23d; amputated, 25th December, 1862. Recovered.

Contributed by Surgeon J. D. Robison, U. S. Vols.

2823. The lower two-thirds of the left humerus, shattered in the middle third and amputated above the insertion of the
d. 29. deltoid. The head was afterward disarticulated for purulent infiltration. The upper portion of the humerus has not been preserved. The specimen shows necrosis at the seat of fracture with feeble attempt at repair.

Private T. McT., 86th Pennsylvania, 25: Spottsylvania, 14th May; admitted hospital, Washington, 28th May; disarticulated, 5th June; died from pyæmia, 7th June, 1864.

Contributed by Assistant Surgeon J. S. Billings, U. S. Army.

See class **VI.** A A. d.

2606. The upper extremity of the right humerus, reamputated at the shoulder joint. The specimen, embracing the head
d. 30. and two inches of the shaft, exhibits a profound degree of necrosis as existing six months after the first operation and requiring the second.

Private W. C., "A," 72d Pennsylvania: fractured by a conoidal ball and amputated in the upper third, Gettysburg, 2d July, 1863; reamputated at the joint by Acting Assistant Surgeon Thomas G. Morton, Philadelphia, 8th January, 1864. Recovered.

Contributed by the operator.

See class **VI.** A. A. d.

4263. The right humerus, amputated at the shoulder joint. A musket ball gouged out a segment of the shaft on the
d. 31. outer border two inches below the head, producing an oblique fracture with long fissures and little comminution.

Private D. I., "K," 36th Ohio: Winchester, 24th July; admitted hospital, Cumberland, Md., 25th July; amputated on account of secondary hæmorrhage, by Surgeon J. B. Lewis, U. S. Vols., 10th August, 1864. Died from tetanus.

Contributed by the operator.

2511. The right humerus, amputated at the shoulder joint after contusion by a conoidal ball, which is attached. The
d. 32. entire shaft is necrosed and surrounded by a partial involucrum. The specimen is interesting from the character of the injury, the extent of the disease, the duration of the case, and the result.

Private J. P., "H," 12th Illinois Cavalry, 45: the ball entered the middle of the arm, Kane's (Cane?) River, La., 27th April; admitted hospital, New Orleans, 1st May; ball extracted near the elbow, 9th May, 1864; admitted hospital, David's Island, New York Harbor, February; amputated at the shoulder joint, by Assistant Surgeon Warren Webster, U. S. Army, 10th November, 1865.

Contributed by the operator.

See class **XXVII.** B. B. d.

2952. The upper half of the left humerus, completely shattered, especially about the epiphysis, by a conoidal ball and
d. 33. disarticulated.

Private S. I., Hampton's Pennsylvania (?) Artillery, 40: Second Bull Run, 30th August; admitted hospital and amputated, by Surgeon I. Moses, U. S. Vols., Washington, 11th September, 1862.

Contributed by the operator.

580. The head and a portion of the shaft of the left humerus. The shaft was shattered by a conoidal ball in the
d. 34. upper third and a segment of the posterior portion of the head broken off.

The history of this case is obscure, but it is supposed to be an illustration of disarticulation.

Contributor and history unknown.

571. The left humerus, disarticulated after shattering at the junction of the upper thirds. The borders of the fracture
d. 35. are necrosed and the comminution extends nearly to the tuberosities.

——— ———: probably before Richmond, June; amputated by Surgeon J. H. Brinton, U. S. Vols., Washington, 11th July, 1862.

Contributed by the operator.

829. The left humerus, badly shattered at the junction of the upper thirds. The parts adjacent to the fracture show
d. 36. commencing necrosis.

Private W. N., "A," 2d Battalion, 14th U. S. Infantry: Second Bull Run, 30th August; amputated at the shoulder joint, by Surgeon T. E. Mitchell, 1st Maryland, Alexandria, 15th September; died, 17th September, 1862.

Contributed by Surgeon J. H. Brinton, U. S. Vols.

For other illustrations, see 3667, **V.** A. A. c. 41; 306, **VI.** A. B. f. 7; 271, **VII.** A. A. d. 1; 773, **VII.** A. B. f. 111; 1705, **IX.** A. B. f. 90

e. Other Operations.

101. The upper portion of the left humerus, the surgical neck and two inches of the shaft being wanting. A partial
e. 1. fracture extends through the head. Spiculæ of bone were removed while under treatment.

Private S. M., "D," 6th New York Cavalry: wounded, 2d September; admitted hospital, Georgetown, 6th: died with pyæmia, 28th September, 1862.

Contributed by Assistant Surgeon A. M. Clark, U. S. Vols.

B. Injuries not caused by Gunshot.

B. Secondary. { a. Contusions and partial fractures. b. Complete fractures. c. Excisions. d. Amputations. e. Other operations.

b. Complete Fractures.

3311. The upper portion of the left humerus, with the head and surgical neck shattered by a blow from a club.
b. 1. Private W. J., "D," 7th U. S. Colored Artillery: also wounded in the ankle, Fort Pillow, Tenn., 12th April; died, Mound City, Ill., 23d April, 1864.

Contributed by Surgeon H. Wardner, U. S. Vols.

See 3312, **XVI.** A. A. e. 15.

c. Excisions.

152. The excised head and four and a half inches of the shaft of the right humerus, with a part of the humerus that
c. 1. remained after the operation. The excised portion was much shattered throughout by a log that was hurled against it by a cannon ball. The stump is necrosed for a short distance. The history states "new bone was formed nearly up the glenoid cavity."

Private H. S., "F," 51st Pennsylvania, 36: Petersburg, 25th March; admitted hospital, Washington, 21 April; excised by Assistant Surgeon H. Allen, U. S. Army, April; died from pyæmia, 4th May, 1865.

Contributed by the operator.

VI. INJURIES AND DISEASES OF THE SHAFT OF THE HUMERUS INVOLVING NEITHER JOINT.

- A. Gunshot Injuries.
  - A. Primary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Excisions.
    - d. Amputations.
    - e. Other operations.
  - B. Secondary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Excisions.
    - d. Amputated fractures.
    - e. Other operations.
    - f. Stumps.
    - g. Sequestra.
- B. Injuries not caused by Gunshot.
  - A. Primary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Excisions.
    - d. Amputations.
    - e. Other operations.
  - B. Secondary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Excisions
    - d. Amputated fractures.
    - e. Other operations.
    - f. Stumps.
    - g. Sequestra.
- C. Diseases.

VI. SHAFT OF HUMERUS.

A. Gunshot Injuries.

A. Primary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Excisions.
- d. Amputations.
- e. Other operations.

b. Complete Fractures.

2446. The lower half of the right humerus, transversely fractured in the lowest third, as it is said, by gunshot. A
b. 1. fissure, but no comminution, extends for two inches on the posterior surface of the upper extremity.
Received after Chancellorsville.

250. The lower half of the right humerus, transversely fractured near the junction of the lower thirds by a conoidal
b. 2. ball, which is attached.
Contributed by Surgeon J. H. Brinton, U. S. Vols.
See class **XXVII.** B. B. d.

682. The right humerus, transversely fractured by gunshot in the middle third, and slightly chipped at the point
b. 3. of impact on the anterior face, with several extensive and carious longitudinal fissures for several inches up and down the shaft.
Contributed by Dr. S. Perry.

2412. The lower two-thirds of the right humerus, exhibiting two distinct and non-communicating fractures. The lower
b. 4. one, just above the condyles, is nearly transverse, with slight comminution. The upper is at the junction of the lower thirds, oblique, without comminution, and crossed on the posterior surface of the shaft by a longitudinal fissure four and a half inches in length. There is no history for this case, but the injuries appear to have been caused by the simultaneous impingment of two missiles, possibly fragments of shell, on the posterior surface.
Received after Chancellorsville.

1500. The lower half of the right humerus, fractured in the lowest third. The point of interest in this specimen is
b. 5. the manner in which the trabeculæ are displayed by the fracture.
Contributed by Surgeon J. H. Brinton, U. S. Vols.

2525. The lower half of the left humerus, fractured in the lowest third. This specimen beautifully exhibits the
b. 6. trabeculæ at that portion of the shaft where it takes upon itself the form of a flat bone.
Received after Chancellorsville.

1221. The lowest fourth of the left humerus, the shaft shattered by shell.
b. 7. Received, without history, from the fight at Beverly Ford, 9th June, 1863.

538. The upper half of the left humerus, badly fractured, with little displacement, as if by a conoidal ball.
b. 8. Contributed by Surgeon McDonald, 79th New York.

3136. The lower half of the left humerus, transversely fractured one inch above the condyles, with an irregular
b. 9. triangular fragment four inches in length broken off from the upper portion. A fragment of shell is attached.
Received, without history, from City Point.
See class **XXVII.** B. A. c.

2861. A portion of the shaft of the humerus, longitudinally fractured for six inches, with comminution from a fragment
b. 10. of shell, which is attached.
Received, without history, from Petersburg.
See class **XXVII.** B. A. c.

4007. The lower half of the left humerus, comminuted at the junction of the lower thirds by a conoidal ball, with a
b. 11. fragment of the missile attached.
Received, without history, from Ninth Corps Hospital.
See class **XXVII.** B. B. d.

2648. The lower half of the left humerus, shattered from behind just above the condyles, and showing the trabeculæ
b. 12. in the lower portion of the shaft. The fractures are nearly six inches in length.
Received, without history, after Chancellorsville.

688. The lower half of the left humerus, greatly comminuted by grapeshot in the lowest third.
b. 13. Contributed by Assistant Surgeon J. E. Semple, U. S. Army.

3933. The upper two-thirds of the right humerus, comminuted at their junction.
b. 14. Private G. S. R., "K," 31st Georgia (Rebel).
Received, without history, from Frederick, Md.

1559. The lower two-thirds of the right humerus, affording a typical illustration of injury from a conoidal ball at short
b. 15. range striking a long bone fairly in the centre of the shaft. The bullet, impinging against the external surface in the lower part of the middle third, destroyed the bone to an extent corresponding to its own calibre and created a stellate fracture with eight rays. Having passed through the shaft a much larger irregular portion has been torn away at its exit, and the fractures have diverged so as to embrace a length of five inches on the posterior surface.
History and contributor unknown.

1564. The lower half of the left humerus that has been shattered in the middle. The jagged ends of this specimen will
b. 16. illustrate how gunshot fracture often converts sound bone into a body of irritation.
Contributor and history unknown.

c. Excisions.

3334. The right humerus, exhibiting an excision of one inch in the lowest third. Both of the extremities are necrosed,
c. 1. and superficial death has involved the greater part of the shaft. The fracture that is observed in the upper third occurred to the specimen after it reached the museum.
Corporal H. F. K., "A," 184th Pennsylvania: wounded and excised on the field, Petersburg, 18th June; admitted hospital, Alexandria, 29th June: died after secondary hæmorrhage, 23d July, 1864.
Contributed by Surgeon E. Bentley, U. S. Vols.

2347. The lower portion of the left humerus, from which more than an inch appears to have been shattered and excised.
c. 2. Contributed by Assistant Surgeon B. Stone, U. S. Vols.

2521. Two fragments of the shaft of the humerus, representing one and a half inches in length and nearly three-fourths
c. 3. of the circumference, excised.
Received, without history, after Chancellorsville.

723. The right humerus, from which two inches in the middle third of the shaft have been excised. The divided
c. 4. extremities are necrosed and exfoliating.
Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

623. Two and one-fourth inches of the shaft of the humerus, showing an oblique fracture without comminution, and
c. 5. supposed to have been excised.
Contributed by Dr. Donelly.

2409. An irregular excised portion of the shaft of the humerus, three inches in its greatest length.
c. 6. Contributed by Surgeon J. H. Brinton, U. S. Vols.

1430. Three inches of the shaft of the humerus in fragments, excised after Gettysburg.
c. 7. Contributed by Surgeons Cantwell and Kibbee, Eleventh Corps.

2705. The right humerus, from which portions of the head and the upper extremity of the shaft have been excised.
c. 8. The missile entered the top of the right shoulder and passed downward and outward, escaping at the junction of the upper thirds.

Private J. P., "E," 14th New Jersey, 30: Jacob's Ford, Va., 27th November; excision performed on the field; admitted hospital, Alexandria, 4th December; died, 7th December, 1863.

Contributed by Surgeon E. Bentley, U. S. Vols.

2143. Three inches of the shaft of the right humerus, shattered and excised. The bone has been directly perforated.
c. 9. Private McC., "I," 149th New York: Mission Ridge, 24th November, 1863; excised by Surgeon I. Moses, U. S. Vols. Recovered.

Contributed by the operator.

2642. Nearly four inches of the upper portion of the shaft of the right humerus, much shattered and apparently excised
c. 10. Received, without history, after Chancellorsville.

3937. Four inches of the shaft of the left humerus, shattered by a conoidal ball and excised. The arm was shortened
c. 11. one inch.

Sergeant J. S. P., "G," 14th Virginia Cavalry, 25: Monocacy, 9th July; admitted hospital, Frederick, 9th; excised by Acting Assistant Surgeon T. J. Dunott, 12th July; transferred to Baltimore, 10th December, 1864.

Contributed by the operator.

See 1480, **XXV.** A. B. a. 16.

1959. The left humerus, after an excision of four inches from the upper and middle thirds. Both of the sawn
c. 12. extremities are necrosed, and there is no evidence of any attempt at repair.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

3701. A portion of the right humerus, showing an excision of four inches of the upper part of the shaft for a lacerated
c. 13. shell wound.

Corporal J. A. D., "C," 32d U. S. Colored Troops: wounded and excised on the field, Honey Hill, S. C., 30th November; admitted hospital, Beaufort, S. C., 3d December; died, 14th December, 1864.

Contributed by Surgeon John Trenor, jr., U. S. Vols.

3156. Four inches of the shaft of the humerus, shattered and excised.
c. 14. Received from City Point.

340. An extremely comminuted portion of the shaft of the humerus, four and a half inches in length, evidently excised.
c. 15. Contributed by Surgeon W. Varian, U. S. Vols

2416. Five inches of the shaft of the left humerus, shattered and excised.
c. 16. Private J. C., "A," 5th U. S. Colored Troops, 32: New Market Road, Va., 29th September; admitted hospital, Portsmouth, Va., 30th September; excised, 3d October, 1864. Recovered.

Contributed by Assistant Surgeon J. H. Frantz, U. S. Army.

3012. Six inches of the shaft of the left humerus, much shattered and excised.
c. 17. Private A. W., "A," 36th U. S. Colored Troops, 40: New Market Road, Va., 29th September; admitted hospital, Portsmouth, Va., 30th September; excised, 3d October, 1864. Recovered.

Contributed by Assistant Surgeon J. H. Frantz, U. S. Army.

3148. Six inches of the shaft of the humerus, much shattered and excised. A portion of the battered bullet is attached.
c. 18. Received from City Point.

See class **XXVII.** B. B. d.

3589. Portions of the right humerus, representing an excision of six inches of the upper part of the shaft done in the
c. 19. field. The extremity of the upper fragment is carious. The lower fragment is somewhat rounded, but its entire anterior surface is occupied by a sequestrum. This man was shot in the foot at the same time.

Private J. H. R., "I," 17th Maine, 46: wounded, 14th May; excised, 16th; admitted hospital, Washington, 18th May; died exhausted, 15th August, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

2961. Six and one-fourth inches of the upper portion of the shaft of the humerus, shattered and apparently excised.
c. 20. Received, without history, from City Point.

3550. The upper third of the left humerus, four weeks after excision of the remainder of the shaft. A small sequestrum
c. 21. at the extremity exhibits a line of separation. The specimen was sawn longitudinally to examine the recent medulla.

Private J. B., "H," 6th Pennsylvania Cavalry, 20: a conoidal ball fractured the middle third, and "entire shaft" excised, Spottsylvania, 8th May; admitted hospital, Washington, 12th May; amputated, as shown, for secondary hæmorrhage, 4th June; died, 5th June, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See class **VI.** A. B. f.

For other illustrations, see 3595, **V.** A. B. d. 17; 3675, **VI.** A. B. d. 14; 2817, **VI.** A. B. d. 25; 1066, **XXI.** A. B. a. 3; 684, **XXI.** A. B. a. 4; 4629, **XXVI.** A. 3, 149.

d. Amputations.

3927. The lower half of the left humerus, amputated for extensive comminution at the junction of the lower thirds by
d. 1. a conoidal ball.

Private J. O'R., "B," 23d Illinois, 43: Bunker Hill, Va., 23d July; admitted hospital, Frederick, 27th: amputated, 28th July, 1864. The stump healed by the first intention, and the man walked about five days after the operation. Recovered.

Contributed by Acting Assistant Surgeon T. E. Mitchell.

66. The lower two-thirds of the left humerus, shattered for four inches by a conoidal ball.
d. 2. From a guerilla: primarily amputated high up on account of laceration of the soft parts, by Surgeon E. McDonald, U. S. Vols., Culpeper, Va., 4th August, 1862.

Contributed by the operator.

4118. The lower half of the left humerus, shattered in the lowest third.
d. 3. Private G. W. Elliott, "G," 5th Michigan: amputated by Surgeon Henry F. Lyster, 5th Michigan, 27th October, 1864. Discharged, 17th March, 1865.

Contributed by the operator.

1591. The right humerus, amputated in the middle third for a comminuted fracture of the lowest third with extensive
d. 4. laceration of the soft parts.

Private M. B. S., "E," 4th Alabama (Rebel): Gettysburg, 2d July; amputated in the field by Assistant Surgeon E. de W. Breneman, U. S. Army; transferred, doing well, to David's Island, New York Harbor, 28th July, 1863.

Contributed by the operator.

3820. The right humerus, amputated in the upper third on account of great comminution at the junction of the lower
d. 5. thirds. The amputation is two and a half inches above the fracture. The line of section is rough, as if from a dull saw.

Private W. H. C., "D," 12th Georgia, (Rebel,) 19: Monocacy, 9th July; admitted hospital and amputated by Acting Assistant Surgeon G. E. Mitchell, Frederick, Md., 10th; died from pyæmia, 22d July, 1864.

Contributed by the operator.

1124. The right humerus, amputated in the upper third for a comminuted fracture from a conoidal ball at the junction of
d. 6. the lower thirds.

Private R. L., "E," 6th Wisconsin: Fredericksburg.

Contributed by Surgeon E. Shippen, U. S. Vols.

491. The left humerus, amputated in the upper third for a comminuted fracture as if by a conoidal ball.
d. 7. Contributed by Assistant Surgeon G. M. McGill, U. S. Army.

1147. The right humerus, amputated in the upper third for complete comminution in the middle third by a conoidal ball.
d. 8. Sergeant G. H. J., "B," 56th Pennsylvania: amputated by Dr. New, 1st May, 1863.

Contributed by the operator.

3952. The left humerus, amputated just below the surgical neck for an oblique comminuted fracture five inches in length
d. 9. from a conoidal ball. The chipping of the external condyle is probably an accident to the specimen. The coracoid and olecranon depressions communicate by a foramen one-third of an inch in diameter.

Private J. P., "A," 12th Georgia, (Rebel,) 19: Monocacy, 9th July; admitted hospital, Frederick, 10th; amputated by Acting Assistant Surgeon T. E. Mitchell, 12th; died from pyæmia, 21st July, 1864.

Contributed by the operator.

154. A portion of the shaft of the right humerus, showing an irregular fracture by a conoidal ball in the middle third.
d. 10. Private D. H., "I," 185th New York, 22: South Side R. R., Va., 29th March; admitted hospital, Washington, 2d April; amputated at the surgical neck, by Assistant Surgeon H. Allen, U. S. Army, 4th April; discharged the service, 2d July, 1865.
Contributed by the operator.

4142. A portion of the shaft of the right humerus, which was amputated at the surgical neck, showing an ordinary
d. 11. minié fracture. The comminution extends for six inches. The battered bullet is attached.
Private J. H. G., "K," 90th Pennsylvania.
Contributed by Surgeon J. H. Hayes, 90th Pennsylvania.
See class **XXVII.** B. B. d.

2518. A portion of the shaft of the humerus, nearly transversely fractured near the lowest third. From the posterior
d. 12. and inferior surface an irregular fragment, one by two inches, with the base at the line of fracture, has broken, but remains in position. Primary amputation has been performed at the junction of the upper thirds three inches above the line of fracture, from which it appears the laceration of the soft parts must have been excessive.
Captain M. E. R., "F," 56th Pennsylvania, 37: Wilderness, 6th May; amputated in the field, by Surgeon A. S. Coe, 147th New York, 7th May; admitted hospital, Annapolis, 7th August; discharged the service, 14th August, 1864.
Contributed by the operator.

For other illustrations, see 2823, **V.** A. B. d. 29; 2606, **V.** A. B. d. 30.

e. Other Operations.

2146. Six fragments of bone representing two inches in length, and a battered conoidal ball removed from the middle
e. 1. third of the shaft of the left humerus.
Brigadier General A. (Rebel): Chickamauga, 19th September; removed by Surgeon I. Moses, U. S. Vols., Murfreesboro', 23d September; paroled, doing well, October, 1863.
Contributed by the operator.
See class **XXVII.** B. B. d.

3847. Seven fragments removed from the upper portion of the shaft of the humerus. A battered pistol ball taken from
e. 2. beneath the scapula is attached.
Private S. C., "M," 5th U. S. Cavalry: accidentally wounded, admitted hospital, and specimen removed, Frederick, 14th July, 1863. Recovered.
Contributed by Acting Assistant Surgeon W. S. Adams.
See class **XXVII.** B. B. d.

1154. Fragments, representing three inches of the upper third of the shaft of the humerus, removed by operation.
e. 3. Private J. F. H., "A," 5th Ohio: Chancellorsville, 3d May.
Contributed by Surgeon J. E. Herbst, U. S. Vols.

B. Secondary Conditions.

a. Contusions and partial fractures.
b. Complete fractures.
c. Excisions.
d. Amputated fractures.
e. Other operations.
f. Stumps.
g. Sequestra.

a. Contusions and Partial Fractures.

2387. The upper third of the left humerus. From the inner portion of the shaft a triangle two and a half inches long
a. 1. by one inch broad at the base, which rests on the epiphyseal line, has been fractured. A fissure of two and a half inches exists in the outer bicipital ridge independent of the fracture.
Received, without history, after Chancellorsville.

3807. The upper half of the right humerus. A conoidal ball partially fractured the bone on the anterior surface at the
a. 2. surgical neck, the lower borders of the wound being necrosed. A longitudinal fissure of six inches, unconnected with the wound, exists on the posterior surface of the upper third.

Private A. C., "K," 6th U S. Cavalry, 28: Petersburg, 1st April; admitted hospital, Washington, 8th; died from pyæmia, 29th April, 1865.

Contributed by Surgeon Benjamin B. Wilson, U. S. Vols.

b. Complete Fractures.

2185. The upper two-thirds of the right humerus, one month after injury. A conoidal ball struck just below the lesser
b. 1. tuberosity, crushing in the laminated structure at the point of impact. There is no further comminution nor any fracture upward, but an oblique fracture with a sharply defined line of cleavage extends for six inches down the diaphysis. Superficial necrosis is observable in many parts of the specimen.

Private J. L. B., "A," 6th Indiana, 25: Mission Ridge, 25th November; admitted hospital, Nashville, 3d December; died from exhaustion following secondary hæmorrhage, 20th December, 1863.

Contributed by Surgeon C. W. Horner, U. S. Vols.

3483. The upper third of the right humerus, partially fractured by a missile striking the anterior portion of the surgical
b. 2. neck, two weeks after injury. Longitudinal fissures extend down the shaft from the point of impact, and one of four inches, not directly communicating with the wound, exists on the posterior surface. Except a slight one in the lesser tuberosity, none reach the epiphysis. There is no attempt at repair.

Private W. L., "C," 97th Indiana: Atlanta, 16th August; declined an operation and died, Fifteenth Corps Hospital, Marietta, Ga., 31st August, 1864.

Contributed by Surgeon A. Goslin, 48th Illinois.

1507. The lower two-thirds of the left humerus, exhibiting a nearly transverse fracture at the junction of the lower
b. 3. thirds, with three well-marked longitudinal fissures of the lower and one small one of the upper portion. There is no comminution.

Contributor and history unknown.

1087. The lower half of the left humerus, fractured with moderate obliquity and without comminution by a missile
b. 4. which has chipped a small portion from the internal border at the place of fracture.

Private T. E. M., "I," 33d North Carolina (Rebel): Second Fredericksburg, 3d May; admitted hospital, Washington, 7th May; amputated middle third; transferred to Old Capitol Prison, 25th June, 1863.

Contributed by Surgeon H. Bryant, U. S. Vols.

114. The lower half of the right humerus, transversely fractured in the lowest third. The extremities at the place of
b. 5. fracture are necrosed for about one inch, with lines of separation forming.

The wound was received in action at Fayetteville, Ark., 1862, but no further history is known.

Contributed by Assistant Surgeon B. E. Fryer, U. S. Army.

1872. The lower half of the left humerus, transversely fractured near the centre of the shaft. Necrosis of the extremity
b. 6. exists for one-fourth of an inch.

The history of this case has not been communicated, but it is presumed to be the result of gunshot.

Contributed by Acting Assistant Surgeon Joseph Leidy.

3879. A portion of the left humerus, obliquely fractured in the upper third without comminution. A longitudinal fissure
b. 7. of two inches occupies each border of the fracture.

Private L. G., "K," 42d North Carolina (Rebel): Gettysburg, 3d July; admitted hospital, Frederick, 6th; died from pyæmia, 21st July, 1863.

Contributed by Acting Assistant Surgeon G M. Paullin.

4291. A portion of the left humerus, exhibiting an oblique fracture with slight comminution from a conoidal ball in the
b. 8. lowest third. Both extremities bordering on the fracture are necrosed, and superficial necrosis occupies the posterior surface of the shaft to its middle.

Private E. H. F., "E," 7th Wisconsin: Southside R. R., Va., 31st March; died from pyæmia, Washington, 23d April, 1865.

Contributed by Surgeon G. L Pancoast, U. S. Vols.

4175. The lowest third of the left humerus, perforated from behind, directly above the condyles, with slight shattering.
b. 9. A longitudinal fracture extending upward for two inches closes abruptly at that point in a transverse fracture, which embraces one-half the calibre of the shaft.

Received, without history, from Ninth Corps Hospital.

1238. The right humerus, shattered through the surgical neck, three weeks after injury. The fissures do not pass the
b. 10. epiphyseal line. There is no attempt at repair, nor any decided marks of death to the bone. This subject received, at the same time, a second wound through the face and neck, fracturing the superior maxillary and severing the left facial nerve.

Private R. W, "F," 95th Pennsylvania: Chancellorsville, 3d May; admitted hospital, Washington, 8th; died suddenly, without an appreciable cause, 24th May, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See 1239, **II.** A. A. b. 1.

454. The right humerus, obliquely fractured in the upper third of the shaft by gunshot in the surgical neck. This
b. 11. specimen well illustrates the indisposition of fractures to cross the epiphyseal line. The specimen at the seat of injury is carious.

Contributed by Assistant Surgeon W. Notson, U. S. Army.

647. The upper third of the right humerus, very badly shattered in the diaphysis. Very slight periosteal disturbance
b. 12. may be traced.

Contributed by Surgeon De Benneville, 11th Pennsylvania Reserves.

492. The upper two-thirds of the left humerus. A bullet has struck the outer border, and oblique fissures radiate to
b. 13. embrace six inches of the shaft. There are slight traces of periosteal disturbance.

Contributed by Surgeon McDonald, 79th New York.

1919. The left humerus, one month after fracture in the lowest third by a musket ball. The specimen is not greatly
b. 14. comminuted. The upper fragment is necrosed for several inches. The lower fragment is partly necrosed, and exhibits also a slight deposit of callus.

Private M. E. T., "D," 99th Ohio, 23: Chickamauga, 19th September; admitted hospital, Nashville, 4th October; died from pyæmia, 19th October, 1863.

Contributed by Assistant Surgeon D. McDill, 84th Illinois.

8. The right humerus, five weeks after comminution by a conoidal ball at the junction of upper thirds, from which
b. 15. the shattered fragments have been removed. There is no attempt at repair. The extremities of the bone are carious, and the lower fragment is denuded of periosteum for several inches.

Private W. G., "A," 24th Virginia, (Rebel,) 45: Williamsburg, 5th May: admitted hospital, Washington, 14th; erysipelas, 24th—28th May; died, 8th June, 1862.

Contributed by Assistant Surgeon J. S. Billings, U. S. Army.

See class **XXIII.** A. A.

3569. The right humerus, six weeks after fracture in the upper third. The extremities of the fragments are irregular
b. 16. and necrosed, and no callus whatever has been deposited. The elbow has been fractured on the inner side without repair.

Private W. M., "D," 2d Pennsylvania, 28: Wilderness, 8th May; admitted hospital, Washington, 12th June; died of pyæmia, 21st June, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See class **VII.** A. B. B.

12. The left humerus, fractured with loss of substance at the junction of the lower thirds. The extremities are slightly
b. 17. rounded, but each is necrosed with a trivial amount of callus above the seat of fracture.

Contributed by Assistant Surgeon J. S. Billings, U. S. Army.

1512. The upper third of the left humerus, shattered, with much loss of substance, below the epiphyseal line. The upper
b. 18. regions of the fracture show traces of periosteal action.

Contributed by Surgeon J. H. Brinton, U. S. Vols.

1015. The right humerus, showing a severe fracture with loss of substance from a bullet wound at the junction of the
b. 19. lower thirds, fourteen days after injury. There is no attempt at repair, nor any evidence of necrosis. The subject received also a severe flesh wound from a shell in the lumbar region, and a flesh wound in the left thigh: he also suffered from chronic diarrhœa.

Private J. T. McG., "B," 24th Texas, (Rebel,) 23: Arkansas Post, 10th January; admitted hospital, St. Louis, 22d; died, 24th January, 1863.

Contributed by Surgeon J. T. Hodgen, U. S. Vols.

2544. The lower two-thirds of the right humerus, eleven days after fracture by a conoidal ball at their junction. The
b. 20. fragments show some periosteal inflammation and commencing necrosis along the lines of fracture.

Private G. W. T., "D," 24th Massachusetts, 20: Deep Bottom, Va., 16th August; admitted hospital, Portsmouth, 18th; amputated, 27th August, 1864. Recovered.

Contributed by Assistant Surgeon J. H. Frantz, U. S. Army.

3353. The right humerus, showing an ununited fracture of the lowest third. The bone is considerably comminuted, but
b. 21. the specimen presents no remarkable feature. Several spiculæ were said to have been driven in the cancellous structure, but they are not visible in the preparation.

Private C. C., "H," 118th Pennsylvania, 21: admitted hospital, Washington, 8th October; died from pyæmia, 21st October, 1864.

Contributed by Acting Assistant Surgeon A. Ansell.

2066. The left humerus, nearly two months after gunshot fracture of the middle third. There was little comminution,
b. 22. but superficial caries has embraced the entire middle third. Two small sequestra are about separating.

Private G. B. N., "D," 37th North Carolina (Rebel): Gettysburg, 3d July; died from pyæmia, Chester, 27th August, 1863.

Contributed by Acting Assistant Surgeon G. Martin.

1911. The lower half of the right humerus, shattered and necrosed at the junction of the lower thirds.
b. 23. Private H. B., "I," 9th Ohio, 39: Chickamauga, 19th September; died, Nashville, 23d October, 1863.

Contributed by Acting Assistant Surgeon Preston Peter.

1861. The upper two-thirds of the left humerus, showing a comminuted fracture at their junction, with necrosed
b. 24. extremities and irregular trivial formations of callus without union.

Received after Gettysburg.

1866. The upper two-thirds of the right humerus, comminuted at the surgical neck, with an oblique fissure extending
b. 25. nearly through the upper third of the shaft. The superior portion is thoroughly necrosed and partly absorbed, while a line of necrosis borders the fissure on the inferior fragment. There is no attempt at repair.

Z. B.: company, regiment, and history not reported.

Contributed by Acting Assistant Surgeon Joseph Leidy.

1316. The upper two-thirds of the right humerus, obliquely fractured with comminution in the upper third. The specimen
b. 26. is greatly carious about the seat of injury. A suitable case for amputation at the joint.

Private D. H. P., "A," 11th New Jersey, 52: Chancellorsville, 3d May; admitted hospital, Washington, 14th June; died from pneumonia, 23d June, 1863.

Contributed by Surgeon G. S. Palmer, U. S. Vols.

3925. The lower two-thirds of the right humerus, nine weeks after comminution in the lowest third. Several small
b. 27. sequestra are in process of separation, and irregular and slight deposits of callus have been made without any useful repair occurring. A line of necrosis extends to its middle. This man also suffered a wound of the face.

Private A. B., "E," 47th Pennsylvania: Cedar Creek, Va., 19th October; admitted hospital, Frederick, 12th November; died exhausted, with his lungs filled with softening tubercles, 23d December, 1864.

Contributed by Acting Assistant Surgeon Ould.

1896. The lower two-thirds of the shaft of the right humerus. The bone was obliquely fractured with some
b. 28. comminution just above the junction of the lower thirds. Moderate sequestra, not detached, exist at the point of fracture. A small amount of callus has been deposited, of which a portion seems to have been absorbed. A large fragment has been attached to the upper portion by a bridge of callus, but no union of the shaft has occurred.

Received after Gettysburg.

3652. The left humerus, six months after fracture in the lower thirds. The entire shaft of the bone is occupied by a
b. 29. sequestrum. That in the lower fragment is heavy and nearly detached. The involucrum is wanting on the anterior surface, where it appears to have been absorbed after deposit. The new deposit on the upper fragment is irregular and sparse.

Private H. T. P., "D," 1st Delaware, 26: admitted hospital, Washington, 28th August, 1864; died, 31st January, 1865.

Contributed by Acting Assistant Surgeon H. M. Dean.

631. The upper two-thirds of the right humerus, partially consolidated, three months after gunshot fracture in the upper
b. 30. third. The lower fragment is necrosed for some distance. On the upper portion a considerable amount of callus attaches the fragments to the shaft.

Private D. R., "K," 15th Massachusetts: Antietam, 17th September; admitted hospital, Washington, 27th September; died, 26th December, 1862.

Contributed by Surgeon J. A. Lidell, U. S. Vols.

3890. A portion of the left humerus, six months after fracture by gunshot in the upper third. The bone is firmly united
b. 31. by effusion of callus on its anterior surface, but the internal portions are carious. The articular surface of the head of the humerus is completely destroyed by ulceration.

Private N. McH., "B," 2d Wisconsin: Antietam, 17th September, 1862; a sequestrum and several fragments removed, Frederick, 21st February; died, 30th March, 1863.

Contributed by Acting Assistant Surgeon W. S. Adams.

4388. The upper half of the right humerus, five months after injury. The bone was perforated, causing an oblique
b. 32. fracture in the upper third. Large quantities of callus have been thrown out, producing partial union. The internal surface of this involucrum has been absorbed in a degree.

Private P. L., "K," 8th Virginia (Rebel): Gettysburg, 3d July; died exhausted, Point Lookout, Md., 11th December, 1863.

Contributed by Assistant Surgeon W. H. Gardner, U. S. Army.

3722. Four inches of the shaft of the humerus, fractured in the upper portion by a conoidal ball, which also shattered
b. 33. the coracoid process and lodged beneath the spine of the scapula.

Private G. W., "E," 96th New York, 24: Cedar Creek, 19th October; admitted hospital, Philadelphia, 26th; died, 30th October, 1864.

Contributed by Acting Assistant Surgeon A. A. Smith.

See 3638, **IV.** A. B. b. 9.

For other illustrations, see 3515, **III.** A. B. a. 10; 1215, **IV.** A. B. b. 43; 4628, **XXVI.** A. 2, 58.

c. Excisions.

146. Two portions, each three-fourths of an inch in length, from the necrosed ends of the shaft of the right humerus
c. 1. transversely fractured at the junction of the upper thirds.

Private H. G., "A," 68th New York: Second Bull Run, 29th August; excised by Surgeon O. A. Judson, U. S. Vols., 18th September: died from chronic diarrhœa, 18th October, 1862.

Contributed by the operator.

2322. One and a half inches of the shaft of the right humerus, excised from the middle third for fracture by a conoidal
c. 2. ball. This subject also underwent on the field an amputation at the ankle joint.

Private H. E. B., "K," 1st Massachusetts Artillery: Spottsylvania, 19th; admitted hospital and excised by Surgeon N. R. Mosely, U. S. Vols., 22d May; died, 22d June, 1864.

Contributed by the operator.

See 828, **XVI.** A. A. d 3.

129. The head and a portion of the shaft of the right humerus, showing an excision of two inches for a comminuted
c. 3. fracture in the upper third.

Private J. S. B., "H," 1st Maryland: Weldon R. R., Va., 18th August; admitted hospital, Washington, 24th; excised by Acting Assistant Surgeon W. C. Mulford, 27th; died from secondary hæmorrhage, 30th August, 1864.

Contributed by the operator.

145. Two and a half inches of the shaft of the humerus, excised for comminuted fracture. The specimen is necrosed
c. 4. on the borders of the fracture, and sustains a moderate amount of callus.

Private W. C., "F," 1st Michigan. Recovered.

Contributed by Surgeon O. A Judson, U. S. Vols.

3495. Two necrosed fragments of the shaft of the humerus that have been excised after fracture, and represent three
c. 5. inches of the continuity. An attempt has been made to save the limb without an operation, and the specimen shows fragments of dead bone imprisoned in small quantities of callus

Contributed, without history, by Surgeon Robert William Pounds.

1749. Twelve excised fragments, representing three inches of the middle third of the shaft of the left humerus.
c. 6. Private P. D., "G," 2d Indiana Cavalry: excised by Surgeon I. Moses, U. S. Vols., 4th June; furloughed, 6th September, 1863.

Contributed by the operator.

1327. Three and a half inches of the shaft of the humerus, shattered and excised.
c. 7. Private M. A. S., "I," 103d Pennsylvania: Fredericksburg, 14th December; excised, 27th December, 1862; died after secondary hæmorrhage, 8th January, 1863.

Contributed by Surgeon C. A. Cowgill, U. S. Vols.

2142. An excision of three and three-fourths inches from the upper third of the shaft of the humerus, in large fragments.
c. 8. First Sergeant N. P., "E," 149th New York: Mission Ridge, 24th November; excised by Surgeon I. Moses, U. S. Vols., Murfreesboro', Tenn., 7th December, 1863. Recovered with "good use of arm and hand"
Contributed by the operator.

1863. The left humerus, after excision of four inches from its middle third. The upper sawn extremity is slightly
c. 9. necrosed, and the lower shows a moderate deposit of callus on its inner border.
Contributed by Acting Assistant Surgeon Joseph Leidy.

3554. Four inches of the shaft of the right humerus, shattered and excised.
c. 10. Corporal E. D., "E," 14th U. S. Infantry, 29: Weldon R. R., Va., 18th August; admitted hospital, Washington, 25th; excised by Acting Assistant Surgeon W. C. Mulford, 28th August, 1864. Recovered.
Contributed by the operator.

1814. Five inches of the shaft of the humerus shattered, and excised after a slight deposit of callus has appeared. The
c. 11. specimen illustrates the destructive effect of a conoidal ball death of the bone following, the moderate attempt at repair by nature, and the character of the operation for relief.
Received, without history, from Nashville.

339. A comminuted portion of the shaft of the humerus, excised. The specimen is more than four inches in its greatest
c. 12. length, but the lines of section are very oblique, and approach each other at one point more nearly by two inches than at another. There is a trace of periosteal disturbance at one point. The bullet entered above the inner condyle and passed out three inches below the acromion, shattering and denuding the bone of periosteum the entire distance.
Private J. McK., "G," 10th Ohio: wounded, 8th October; admitted hospital, New Albany, Ind., 18th; excised by Acting Assistant Surgeon M. N. Eldrod, 21st October; discharged, with no perceptible shortening and with the usual movements retained, December, 1862.
Contributed by Surgeon W. Varian, U. S. Vols.

For other illustrations, see 3608, **V.** A. B. d. 6; 3331, **V.** A. B. d. 7; 273, **VI.** A. B d. 15; 486, **VI.** A. B. d. 18; 1311, **XV.** A. B. d. 101; 4629, **XXVI.** A. 3, 112, 148.

d. Amputated Fractures.

1017. The lower half of the left humerus, with a nearly transverse fracture in the lowest third complicated by several
d. 1. deep but short fissures and a severe flesh wound from a fragment of shell.
D. O'H., seaman, Gunboat "Ponchartrain," (Rebel,) 26: Arkansas Post, 10th January; admitted hospital and arm amputated, St. Louis, 22d January, 1863.
Contributed by Surgeon John T. Hodgen, U. S. Vols.

2426. The lower half of the right humerus, amputated four weeks after injury. The shaft is fractured nearly
d. 2. transversely in the lowest third, with a deep fissure extending upward for an inch on the posterior surface. The upper extremity is necrosed one inch above the line of fracture, excepting along the external border, where a trivial osseous deposit has occurred. There is no attempt at union.
Private J. S., "H," 62d New York, 60: Wilderness, 5th May; admitted hospital, Washington, 25th May; amputated by Acting Assistant Surgeon H. M. Dean, 3d June; died from exhaustion, 10th June, 1864.
Contributed by the operator.

2936. The lower half of the left humerus, amputated one month after fracture in the lowest third. The bone is nearly
d. 3. transversely fractured with very little comminution. There are several longitudinal fissures in each fragment. There has been no attempt at repair, and the parts adjacent to the injury are carious
Private J. S., "C," 23d Pennsylvania: probably Spottsylvania, 12th May; admitted hospital, Washington, 19th May; amputated for secondary hæmorrhage, 9th June; died, 10th June, 1864.
Contributed by Surgeon O. A. Judson, U. S. Vols.

690. The lower half of the left humerus, amputated for a grape-shot fracture at the junction of the lower thirds with
d. 4. little comminution on the posterior surface. One fragment, one by two inches, is separated.
Contributed by Acting Assistant Surgeon J. E. Semple, U. S. Army.

1106. The lower two-thirds of the right humerus, amputated for secondary hæmorrhage after an oblique fracture at the
d. 5. junction of the lower thirds. The fracture is three inches in length and without comminution. Moderate periosteal disturbance is observable.
Private W. H. F., "H," 7th Ohio: Chancellorsville, 3d May; admitted hospital, Washington, 6th; amputated by Surgeon H. Bryant, U. S. Vols., 14th May, 1863.
Contributed by the operator.
See 1107, **XXII.** A. B. a. 3.

802. The lower portion of the right humerus, amputated in the middle third for a comminuted fracture at the junction
d. 6. of the lower thirds. There are slight traces of periosteal inflammation bordering the fractures.

Private J. W. H., 36th Ohio, 21: South Mountain, 14th September; amputated, Frederick, 27th September; died from pyæmia and imperfectly developed tetanus, 6th October, 1862.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

160. The right humerus, amputated at the surgical neck three weeks after injury. In the middle third a transverse
d. 7. oblique fracture connects with a longitudinal fissure of three and a half inches on the external surface of the upper portion of the shaft. There is no attempt at repair, and but a minute trace of necrosis at what appears to be the point of impingement on the posterior surface of the bone. The peculiarity of the fracture may be due to the obliquity of the line of flight.

Private L. S., "H," 100th Pennsylvania: Chantilly, Va., 1st September; admitted hospital, Washington, 8th; amputated for secondary hæmorrhage from the brachial artery, by Assistant Surgeon Warren Webster, U. S. Army, 20th September, 1862. Died.

Contributed by the operator.

2463. The lower two-thirds of the right humerus with a nearly transverse fracture in the lowest third. There was no
d. 8. comminution, but both extremities of the fragments are necrosed without attempt at repair.

Sergeant H. H., "H," 119th Pennsylvania, 25: Wilderness, 5th May; admitted hospital, Washington, 9th May; amputated in the upper third, by Acting Assistant Surgeon J. C. Nelson, 7th June; died, 15th June, 1864.

Contributed by Surgeon G. L. Pancoast, U. S. Vols.

3484. The lower extremity of the right humerus, amputated after fracture in the lowest fourth. The specimen shows
d. 9. the fractured extremities slightly rounded in an attempt to save the limb.

Lieutenant E. H., 6th Iowa: Atlanta, 22d August; admitted Fifteenth Corps Hospital, Marietta, Ga., 24th August; amputated for secondary hæmorrhage, 2d September, 1864. Recovered.

Contributed by Surgeon J. R. Gove, 127th Illinois.

3363. The lower half of the left humerus, amputated for an ordinary gunshot fracture of the lowest third.
d. 10. Private N. W., "A," 125th Ohio, 38: Resaca, Ga., 14th May; admitted hospital, Nashville, Tenn., 19th; amputated, 21st May, 1864.

Contributed by Surgeon R. L. Stanford, U. S. Vols.

927. The lower half of the right humerus, showing an irregular fracture in the middle third, the extremities of which
d. 11. are necrosed and partially separated. The arm probably underwent a secondary amputation in the upper third.

Contributed by Assistant Surgeon C. Wagner, U. S. Army.

381. The lower half of the left humerus, transversely fractured with comminution of the anterior surface. There is no
d. 12. indication of repair.

Private W. G., "B," 59th New York, 38: Antietam, 17th September; amputated for incipient tetanus, 30th September; died from tetanus, 5th October, 1862.

Contributed by Surgeon A. Dougherty, U. S. Vols.

73. The lower half of the right humerus, perforated with much comminution at the junction of the lower thirds.
d. 13. Private J. V., "C," 13th New York: Second Bull Run, 30th August; amputated by Acting Assistant Surgeon W. W. Keen, jr, Centreville, Va., 7th September; transferred to hospital near Alexandria, 9th; died, 17th September, 1862.

Contributed by the operator.

3675. The lower two-thirds of the left humerus, amputated after excision. The extremity is necrosed and a line of
d. 14. separation is forming. A very moderate amount of callus is deposited below.

Sergeant B. A. W., "H," —— Cavalry, 21: Weldon R. R., Va., 25th August; admitted hospital, Philadelphia, 29th August; amputated for secondary hæmorrhage, by Acting Assistant Surgeon J. G. Morton, 15th September; died, 11th October, 1864.

Contributed by Surgeon L. Taylor, U. S. Army.

See class **VI.** A. A. c.

273. The lower half of the right humerus, amputated after an excision of two inches in the middle third. Several
d. 15. fragments, representing the excised portion, were partly necrosed, and, covered to a degree with callus, are mounted with the specimen.

Corporal W. H. W., "H," 20th Massachusetts: Antietam, 17th September; excised, 11th October; amputated for secondary hæmorrhage, 19th October, 1862. Recovered and discharged the service.

Contributed by Surgeon J. L. Le Conte, U. S. Vols.

See class **VI.** A. B. c.

163. The lower half of the right humerus, completely shattered for four and a half inches. The upper portions of the
d. 16. bones of the forearm are attached.

Private G. H., "D," 24th New York: Second Bull Run, 30th August; admitted hospital, Washington, 1st September; amputated in the middle third by Assistant Surgeon C. A. McCall, U. S. Army, 6th September, 1862. Completely recovered in three weeks.

Contributed by Medical Cadet E. Coues.

2974. The lower thirds of the left humerus, amputated for a fracture in the middle third. The broken extremities
d. 17. appear rounded, as though an attempt had been made to save the limb.

Private E. T., "G," 31st Maine: Petersburg, 30th July; admitted hospital, Washington, 3d August; amputated by Surgeon A. F. Sheldon, U. S. Vols., 7th; died from exhaustion, 13th August, 1864.

Contributed by the operator.

486. The two lower thirds of the right humerus, shattered for six inches by a conoidal ball. A portion of the battered
d. 18. missile is attached. The specimen shows, in a section of its upper extremity, an attempt at excision.

Private W. J., "K," 7th Rhode Island: Fredericksburg, 13th December; admitted hospital, Washington, 17th; amputated, 18th December, 1862. Discharged the service.

Contributed by Acting Assistant Surgeon H. Stone.

See classes **VI.** A. B. c; **XXVII.** B. B. d.

984. The left humerus, amputated in the middle third for a comminuted fracture in the lowest third. Nearly an inch
d. 19. of the shaft has been removed by gunshot.

Private J. H., "H," 131st Pennsylvania: Fredericksburg, 13th December; admitted hospital, Washington, 18th; amputated, 19th December, 1862.

Contributed by Surgeon R. B. Bontecou, U. S. Vols.

4165. The left humerus, amputated at the junction of the lower thirds for a comminuted fracture just below the seat
d. 20. of section. Portions of the radius and ulna are attached, showing a fracture of the ulna at the junction of the upper thirds.

Private G. L. C., —— Artillery, (Rebel,) 25: Burksville, 6th April; amputated by Assistant Surgeon W. Carroll, U. S. Vols., City Point, Va., 18th April, 1865.

Contributed by the operator.

See class **VIII.** A. B. b.

1917. The lower half of the left humerus, amputated two months after fracture in the lowest third. The fracture was
d. 21. nearly transverse, with a splinter of two and a half inches broken off the inner border of the upper fragment. A considerable effusion of callus has partially united the fragments, with some displacement, to the upper portion, but no union of the broken shaft has occurred.

Private J. S., "E," 38th Illinois, 20: Chickamauga, 19th September; amputated by Acting Assistant Surgeon P. Peter, Nashville, 20th November, 1863; discharged the service, 31st August, 1864.

Contributed by the operator.

219. The right humerus, amputated in the upper third twenty-five days after fracture by a conoidal ball. The middle
d. 22. third of the bone is comminuted, with necrosis of the borders of the fracture.

Private C. W.: Second Bull Run, 30th August; amputated, Washington, 24th September, 1862.

Contributed by Surgeon O. A. Judson, U. S. Vols.

45. The lower half of the right humerus, amputated for secondary hæmorrhage following a comminuted fracture from
d. 23. a conoidal ball at the junction of the lower thirds. There is no reparative action.

Private W. H. C., "A," 28th New York: Cedar Mountain, Va., 9th August; admitted hospital, Alexandria, 12th; amputated by Surgeon John E. Summers, U. S. Army, 21st August; died, 24th September, 1862.

Contributed by the operator.

26. A portion of the shaft of the humerus, much comminuted at the junction of the upper thirds, amputated nineteen
d. 24. days after injury. Slight osseous deposit has occurred on a few of the fragments, but there is no attempt at union. A fragment of bullet is attached.

Private W. A. E., "H," 16th Massachusetts, 25: White Oak Swamp, Va., 30th June; admitted hospital, Washington, 4th July; amputated by Surgeon R. H. Coolidge, U. S. Army, 19th July, 1862. Recovered.

Contributed by Acting Assistant Surgeon W W. Keen, jr.

See class **XXVII.** B. B. d.

2817. The two lower thirds of the right humerus, amputated after an excision of about one inch for gunshot. Sequestra
d. 25. nearly detached have formed on the extremities of the fragments, beyond which much superficial necrosis has occurred.

Private F. J. H., "M," 13th Pennsylvania Cavalry, 20: wounded and excised, Salem Church, Va., 30th May; admitted hospital, Washington, 4th June; amputated in the upper third by Surgeon N. R. Mosely, U. S. Vols., 6th July; discharged the service, 24th September, 1864.

Contributed by the operator.

See class **VI.** A. A. c.

1079. The right humerus, amputated at the surgical neck for a comminuted fracture of the upper third by a conoidal
d. 26. ball, which is attached.

Private J. W. S., "D," 6th Maine: Chancellorsville, 2d May; admitted hospital, Washington, 7th; amputated, 11th May, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See class **XXVII.** B. B. d.

1634. The shaft of the right humerus, amputated in the upper third four weeks after injury. The specimen shows a
d. 27. badly comminuted fracture in the middle third. A trivial amount of callus has been deposited upon the fragments, the borders of which are necrosed.

Private A. D., "A," 11th Indiana, 23: Champion's Hill, Miss., 16th May; amputated by Acting Assistant Surgeon L. Darling, Hospital-steamer "City of Memphis," 12th June, 1863.

Contributed by Assistant Surgeon H. M. Sprague, U. S. Army.

3402. The lower half of the right humerus, amputated three weeks after fracture in the lowest thir . attempt
d. 28. at union has occurred, beyond the attachment of two fragments to the superior portion. The fractured extremities are necrosed.

Private F. C., "K," 36th U. S. Colored Troops, 22: Deep Bottom, Va., 29th September; admitted hospital, Portsmouth, Va., 5th October; amputated, 19th October, 1864. Recovered.

Contributed by Assistant Surgeon J. H. Frantz, U. S. Army.

3113. The greater portion of the shaft of the right humerus, with a very oblique fracture in the upper half, amputated
d. 29. two weeks after injury. There is no effort at repair.

Private M. V. M., "E," 18th Indiana, 24: Winchester, 19th September; admitted hospital, Philadelphia, 27th September; amputated at the surgical neck by Acting Assistant Surgeon Moon, 3d October; died from exhaustion, 14th October, 1864.

Contributed by Acting Assistant Surgeon Joseph Sheppard.

2190. An ununited fracture of the lowest third of the right humerus, amputated three months after injury. The
d. 30. specimen shows small fragments of bone thinly coated with callus and attached to the extremities. The middle third of the shaft is necrosed.

Private A. B., "B," 28th Alabama, (Rebel,) 22: Mission Ridge, 25th November, 1863; amputated by Acting Assistant Surgeon T. G. Hickman, Nashville, 25th February; died, 2d March, 1864.

Contributed by Acting Assistant Surgeon G. P. Hackenburg.

3913. The lower half of the left humerus, amputated eleven weeks after gunshot fracture in the lowest third. The
d. 31. specimen shows nearly separated two fine tubular sequestra with fair involucra, which, however, do not afford union. The internal condyle also exhibits an old simple fracture with ligamentous union, not connected with the gunshot injury.

Private W. H. H., "K," 128th New York, 24: Winchester, 19th September; admitted hospital, Frederick, 12th November; amputated by Acting Assistant Surgeon W. B. McCausland, 6th December, 1864.

Contributed by the operator.

See 1575, **XXV.** A. B. b. 78.

See classes **VI.** A. B. g.; **VII.** B. B. b.

2069. The lower thirds of left humerus, amputated forty-one weeks after fracture at their junction. The shaft is
d. 32. fairly consolidated with slight deformity, but the interior, in which is lodged a battered bullet, is carious.

Private J. C., "D," 72d New York, 22: Williamsburg, 5th May, 1862; amputated, Chester, Penna., 16th February; died from pyæmia, 23d February, 1863.

Contributed by Acting Assistant Surgeon Joseph A. Draper.

See class **XXVII.** B. B. d.

2473. The lowest third of the right humerus and greater portion of the bones of the forearm. The radius is shattered in
d. 33. the upper third of the shaft, and the humerus is fractured just above the inner condyle, as though the wound had been received while in the act of firing.

Private L. F. B., "F," 14th Connecticut: wounded, 6th May: admitted hospital, Washington, 11th; amputated in the middle third by Acting Assistant Surgeon Nelson, 27th May; died, 18th June, 1864.

Contributed by Surgeon G. L. Pancoast, U. S. Vols.

See class **VIII.** A. B. d.

1520. The greater portion of the left humerus, amputated near the surgical neck for a compound fracture at the junction
d. 34. of the upper thirds. At the point of fracture the shaft is much shattered, but new bone has formed so as to afford, particularly on the posterior surface, tolerably firm union. Fragments of dead bone are, however, entangled in the callus.

Contributor and history unknown.

1312. A wet preparation of the humerus, exhibiting a false joint after fracture in the middle third by a musket ball. A
d. 35. large amount of callus has been thrown out on each fractured extremity without osseous union. The muscular attachments appear to have taken on a semi-ligamentous character.

Private A. M. D., "C," 1st New Jersey: Second Fredericksburg, 3d May; admitted hospital, Washington, 13th June; amputated by Acting Assistant Surgeon D. P. Wolhaupter, 26th June; discharged, 10th August, 1863. The ball was found in the elbow joint.

Contributed by the operator.

124. The lower half of the left humerus, amputated for fracture with comminution by a conoidal ball in the lowest third.
d. 36. Private J. T. P., "C," 6th Maine, 28: Wilderness, 6th May; amputated by Assistant Surgeon J. C. McKee, U. S. Army, Washington, 12th May; died of pyæmia, 8th June, 1864.

Contributed by Acting Assistant Surgeon A. Ansell.

501. A portion of the left humerus, amputated at the junction of the upper thirds after shattering in the lower half.
d. 37. The bullet entered from the left and behind, fracturing the shaft for four inches longitudinally. There is a little periosteal thickening on the main portion of the bone, but the fragments have lost their vitality.

Private W. R. McN., "D," 40th Pennsylvania: probably Second Bull Run, 30th August; admitted hospital, Washington, 10th September; amputated, September; died, 26th October, 1862.

Contributed by Surgeon J. C. Dorr, U. S. Vols.

604. The amputated portion of the right humerus, after section below the surgical neck. The bone was comminuted
d. 38. above the middle, and commencing necrosis may be traced along the main portion of the shaft.

Private T. H., "H," 86th New York.

Contributed by Surgeon J. C. Dorr, U. S. Vols.

For other illustrations, see 3331, **V.** A. B. d. 7.

e. Other Operations.

414. Two small fragments of necrosed bone, removed from the upper third of the right humerus after fracture by a
e. 1. conoidal ball.

Private A. McC., "E," 2d Maryland: Antietam, 17th September; admitted hospital, Baltimore, 20th September; specimen removed, 12th October; "arm united; died from pneumonia," 14th October, 1862.

Contributed by Surgeon L. Quick, U. S. Vols.

452. Ten small necrosed fragments, removed from the humerus after gunshot.
e. 2. Private W. J. D., Thompson's Independent Pennsylvania Battery: Antietam, 17th September; removed by Surgeon H. S. Hewit, U. S. Vols., Frederick, 1st October; discharged, 24th November, 1862.

Contributed by the operator.

1112. A shaving of lead and ten small necrosed fragments of bone, removed at various times from the shaft of the
e. 3. humerus.

Private T. McC., "A," 4th New York: Antietam, 17th September; admitted hospital, Baltimore, 20th September, 1862. Recovered.

Contributed by Surgeon C. W. Jones, U. S. Vols.

See class **XXVII.** B. B. d.

434. Eleven small necrosed fragments, removed by operation from the humerus five and a half months after excision of
e. 4. two inches of the shaft for gunshot in the middle third.

Private H. H. W., "A," 11th Pennsylvania Reserves: before Richmond, June; admitted hospital, Baltimore, 25th July; excised by Surgeon A. B. Hasson, U. S. Army, 2d August, 1862; specimen removed, 22d January; firm union, March, 1863. He was admitted from Libby Prison, where he had received no treatment.

Contributed by the operator.

2505. Eight small fragments of the shaft of the humerus, representing one inch of the length and three-fourths of
e. 5. the circumference.

Private J. H., "F," 14th New Jersey: Hanover C. H., Va., 30th May; admitted hospital, Washington, 4th June; removed by Surgeon N. R. Mosely, U. S. Vols., 6th June; deserted while on furlough, 24th August, 1864.

Contributed by the operator.

18. The left humerus, after comminution and the removal of several large fragments at the junction of the upper
e. 6. thirds. The extremities are denuded of periosteum and are carious. A very minute deposit of callus exists on the lower fragment.

Private J. C., "H," 38th Virginia, (Rebel,) 24: Williamsburg, 5th May; admitted hospital, Washington, 12th; fragments removed, 16th; attacked with erysipelas, 18th May; died, 2d June, 1862.

Contributed by Assistant Surgeon J. S. Billings, U. S. Army.

See class **XXIII.** A. A.

3906. The lower thirds of the left humerus fractured, from which fragments and ends of bone to the extent of two and
e. 7. a half inches have been removed. The specimen shows the extremities necrosed and a little ill-developed callus upon the shaft.

Private H. O., "F," 36th Ohio, 18: Winchester, 24th July; admitted hospital, Frederick, 27th; fragments of bones and pieces of bullet removed by Acting Assistant Surgeon J. H. Bartholf, 31st July; died from pyæmia, 18th August, 1864.

Contributed by the operator.

4292. Eleven fragments, representing three inches of the upper part of the shaft of the right humerus, removed after
e. 8. fracture by a conoidal ball. All the pieces are more or less necrosed.

Private M. L., "F," 100th Pennsylvania: Petersburg, 25th March; removed by Surgeon G. L. Pancoast, U. S. Vols., Washington, 24th April, 1865. Recovered.

Contributed by the operator.

1150. Fragments representing three inches of the middle third of the shaft of the humerus, removed by operation. A
e. 9. part of a conoidal ball, curiously flattened, is attached.

Private M. F., "B," 149th New York: Chancellorsville, 3d May; a prisoner without attention some days; excised by Assistant Surgeon Lord, 102d New York, Twelfth Corps Hospital, 15th May; died from pyæmia, 4th June, 1863.

Contributed by the operator.

See class **XXVII.** B. B. d.

1754. Eleven fragments, representing three inches, removed from the middle third of the shaft of the left humerus.
e. 10. Private G. D., "C," 77th Pennsylvania: wounded, 25th June; removed by Surgeon I. Moses, U. S. Vols., Chattanooga, 29th June, 1863. Recovered.

Contributed by the operator.

821. Several fragments, representing three and a half inches of the length and one-third of the circumference of the
e. 11. shaft of the humerus, removed by operation.

Private T. K., "C," 107th Pennsylvania: Antietam, 17th September; removed, 26th September, 1862. Recovered.

Contributed by Dr. Sweet.

f. Stumps.

2667. The upper half of the right humerus, two days after amputation and six weeks after injury. The entire shaft
f. 1. was denuded of periosteum and roughened, with some caries in the bicipital groove. Pus was found in the bone on amputation, but the subject's condition would not permit a second operation.

Private J. L. C., "L," 1st Maine Heavy Artillery, 17: Spottsylvania, 12th May; admitted hospital, Washington, 22d May; amputated by Acting Assistant Surgeon H. M. Dean, 22d June; died exhausted, 24th June, 1864.

Contributed by the operator.

See 2638, **VII.** A. B. f. 25.

3868. Two inches from the stump of the left humerus, eleven days after amputation. The bone is entirely denuded of
f. 2. periosteum.

Private N. R. P., "F," 5th Virginia, 23: Berryville, Va., 2d September; amputated, 5th; admitted hospital, Frederick, 14th; died from pleurisy, 16th September, 1864.

Contributed by Acting Assistant Surgeon J. H. Bartholf.

3756. The stump of the right humerus, nineteen days after amputation at the junction of the lower thirds for secondary
f. 3. hæmorrhage following a flesh wound of the elbow. A necrosed ring is in process of separation, but there is no indication of repair.

Corporal J. B., "F," 14th Ohio, 27: Atlanta, 5th August; admitted hospital, Nashville, 20th August; amputated, 23d September; died from pyæmia, 12th October, 1864.

Contributed by Acting Assistant Surgeon H. C. May.

1254. The head and one and a half inches of the right humerus, eight days after amputation. The specimen presents
f. 4. no unusual condition.

Corporal W. S. S., "D," 6th Maine, 26: Second Fredericksburg, 3d May; admitted hospital, Washington, 8th; amputated, 11th; died from secondary hæmorrhage, 19th May, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

3552. The upper half of the left humerus, one month after injury and two weeks after amputation. There has been
f. 5. no attempt at repair, and superficial caries appears along the bicipital lines. The periosteum generally has been detached.

Private P. B., "G," 96th Pennsylvania, 18: Spottsylvania, 10th May; amputated, 24th; admitted hospital, Washington, 25th May; died from pyæmia, 8th June, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

312. The upper third of the left humerus, after death by tetanus two weeks after amputation. A fragment, one by
f. 6. two and a half inches, and embracing the point of impact, was found in the posterior flap pressing upon the median nerve. No saw appears to have been used in the amputation.

Corporal J. J., "F," 21st New York: wounded and amputated on the field, Second Bull Run, 30th August; admitted hospital, Alexandria, 2d September; tetanus supervened, 8th; died, 12th September, 1862.

Contributed by Acting Assistant Surgeon S. E. Fuller.

306. The stump of the left humerus, amputated at the junction of the upper thirds. A ring of necrosis embraces the
f. 7. extremity, which shows no indication of being rounded. Superficial caries has occupied portions of the shaft and the articulation. The specimen may possibly be a disarticulation.

Contributed by Surgeon John T. Hodgen, U. S. Vols.

See class **V.** A. B. d.

3821. The stump of the left humerus, twenty-four days after amputation at the upper third. On admission to hospital
f. 8. the bone protruded from two short flaps. The specimen exhibits a little caries at the extremity, with no attempt at repair.

Captain J. G. L., "G," 4th Georgia, (Rebel,) 30: amputated on the field, Gettysburg, 1st July; admitted hospital, Frederick, 6th; died exhausted from chronic diarrhœa and suppuration, 25th July, 1863.

Contributed by Acting Assistant Surgeon J. H. Bartholf.

2892. The upper two-thirds of the left humerus, twenty-four days after amputation. The extremity is necrosed and
f. 9. the periosteum denuded for several inches.

Corporal D. Z., "B," 15th New York Artillery, 23: admitted hospital, Washington, 1st July; amputated by Acting Assistant Surgeon A. Ansell, 2d; died with incipient pyæmia, 26th July, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

2915. The stump of the right humerus, after death from pyæmia four weeks after amputation in the middle third.
f. 10. No attempt at rounding the stump, which exhibits a slight ring of necrosis, has occurred. The specimen has been sawn longitudinally to show recent changes, which are not noticeable in the dried preparation.

Private F. G., "K," 27th Massachusetts: Cold Harbor, 3d June; admitted hospital near Alexandria, 8th; amputated for secondary hæmorrhage, 10th June; died from pyæmia, 6th July, 1864.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

2877. The upper half of the right humerus, after death from pyæmia seventeen days after amputation. The extremity
f. 11. is necrosed and the bone superficially carious to the joint.

Private H. M., "E," 1st Michigan Cavalry, 20: amputated for secondary hæmorrhage by Acting Assistant Surgeon Ensign, Washington, 24th June; died from pyæmia, 11th July, 1864.

Contributed by Acting Assistant Surgeon D. B. Hays.

1987. The stump of the left humerus, one month after amputation in the middle third. There is no attempt at repair.
f. 12. The medullary substance was softened for two inches at the lower extremity, the periosteum detached, and the bone roughened for the same distance.

Corporal J. L., "A," 14th New Jersey, 44: wounded and amputated, Locust Grove, Va., 27th November; admitted hospital, Alexandria, 5th December; secondary hæmorrhage, with pyæmic symptoms, 25th December, 1863.
Contributed by Acting Assistant Surgeon W. G. Elliott.

1711. f. 13. The stump of the left humerus, after death from pyæmia four weeks after amputation at the junction of the lower thirds. The extremity is necrosed and superficial caries extends over the lower half of the shaft. There is no deposit of callus.

Private J. H., "A," 140th New York: Gettysburg, 2d July; admitted hospital, Baltimore, 14th; amputated, 28th July; died from pyæmia, 24th August, 1863.
Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

1103. f. 14. The stump of the right humerus, amputated two inches below the tuberosities. The extremity is necrosed; periosteal thickening occupies the most of the shaft, but without positive reparation.
Contributed by Surgeon H. S. Hewit, U. S. Vols.

1842. f. 15. The lower half of the right humerus, from a case of pyæmia after amputation. The extremity is necrosed, with no attempt at repair.
Contributed by Acting Assistant Surgeon T. H. Stillwell.

3286. f. 16. The stump of the left humerus, after amputation in the upper part of the middle third. The entire shaft is carious.
Contributor and history unknown.

2875. f. 17. Three and a half inches of the shaft of the humerus, after amputation. There is a slight effort at rounding the extremity, which, however, is carious, with a trivial peripheal deposit of callus.
Private E. T. S., "E," 8th New York Heavy Artillery, 24: Cold Harbor, 3d June; amputated in the middle third on the field; reamputated in the upper third, Washington, 10th July, 1864; discharged the service, 31st May, 1865.
Contributed by Acting Assistant Surgeon Samuel Graham.

1937. f. 18. The upper half of the right humerus, two months after amputation. Two small nearly detached sequestra occupy the extremity. The entire shaft is superficially carious, and the articulation is eroded by ulceration.
Private S. H. W., "E," 5th Texas, (Rebel,) 21: Gettysburg, 2d July; amputated, 15th July; died exhausted, 13th September, 1863.
Contributed by Acting Assistant Surgeon E. P. Townsend.

2886. f. 19. The stump of the left humerus, five weeks after amputation in the middle third. The extremity is necrosed and has a moderate fringe of callus.
Private C. W. A., "C," 1st Maine Heavy Artillery, 23: wounded and amputated on the field, Petersburg, 18th June; admitted hospital, Washington, 28th June; died from pyæmia, 21st July, 1864.
Contributed by Acting Assistant Surgeon H. M. Dean.

1898. f. 20. One and a half inches from the stump of the humerus, amputated on account of necrosis. The specimen exhibits insignificant new bony formation
Contributed by Surgeon A. Hard, 8th Illinois Cavalry.

4195. f. 21. Three inches from the stump of the right humerus, nearly seven months after amputation at the lowest third. The specimen consists of a large but spongy involucrum, enclosing a delicate sequestrum, removed by the chain-saw. An additional inch and a half was removed by the bone forceps in small fragments.
Private W. W. B., "I," 138th Pennsylvania, 31: Wilderness, 6th May; amputated, 10th May; specimen removed by Acting Assistant Surgeon James Tyson, Philadelphia, 3d December, 1864; discharged the service, healed, 4th January, 1865.
Contributed by the operator.

2522. f. 22. One and a half inches of the stump of the left humerus, enclosing as an involucrum a sequestrum three inches in length. The new structure is spongy in texture and incomplete.
Sergeant J. H. M., "H," 102d New York: wounded and amputated, Peach Tree Creek, Ga., 20th July, 1864; admitted hospital, Albany, New York, 7th July, 1865; reamputated and healed.
Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

1201. f. 23. Four and a half inches from the stump of the humerus, reamputated for necrosis, with no return of the disease. A semi-tubular detached sequestrum, two and a half inches in length, partially occupies the spongy and imperfect involucrum, which comprises the extreme three inches of the specimen.
B. F. P., "D," 5th New York.
Contributed by Surgeon O. A. Judson, U. S. Vols.

2215. Five inches from the stump of the humerus, showing a slight, nearly detached sequestrum three inches in length,
f. 24. with a fair effusion of callus assuming the condition of a partial involucrum.

Private T. W. S., "H," 10th Alabama (Rebel).

Contributed by Dr. Daniel Weine.

1869. Four inches of the stump of the humerus, being an enlarged and imperfect involucrum enclosing a tubular
f. 25. sequestrum of nearly its own length.

Contributed by Acting Assistant Surgeon J. H. Packard.

2742. The bony stump of the left humerus, from an amputation in the middle third. The specimen is a remarkable
f. 26. instance of hypernutrition, its diameter at the point of section being nearly two inches. Viewed on the proximal surface the outline of the original bone may be observed. A redundant and irregular effusion of callus at the extremity has imprisoned a detached sequestrum.

Private J. F., "H," 73d Pennsylvania, 33: Chancellorsville, 2d May; amputated in the middle third, 17th May, 1863; reamputated by Acting Assistant Surgeon R. J. Levis, Philadelphia, 28th April, 1864. Recovered.

Contributed by the operator.

895. The right humerus, after amputation in the lowest third. The extremity is necrosed, "showing a small partially
f. 27. separated sequestrum with a trivial fringe of callus bordering the sound bone."

Contributor and history unknown.

1827. Two inches of the stump of the left humerus, after primary amputation. The extremity is very slightly rounded
f. 28. and is carious. The shoulder was wounded by a buckshot at the same time.

Private G. R. P., 3d Maine, 21: wounded and arm amputated in the field, Virginia, May; admitted hospital, New York Harbor, 8th June, 1862; died after recurrent secondary hæmorrhage from the wound of the shoulder.

Contributed by Acting Assistant Surgeon S. Teats.

See 4338, **VI.** C. 1; 4339, **XVIII. II.** A. B. b. 8.

1741. Two inches of the stump of the left humerus. The extremity is slightly rounded, but the bone is not in a good
f. 29. condition.

First Lieutenant C. P. McT., "H," 3d Michigan: elbow shattered and excised, Fair Oaks, 31st May; arm amputated in the lowest third by Surgeon D. W. Bliss, U. S. Vols., 1st June; the flaps sloughed and the arm was reamputated by the same operator, Washington, 7th September, 1862. Returned to duty.

Contributed by the operator.

See class **VII.** A. A. c.

4226. Three and a half inches of the shaft of the left humerus, amputated the second time after shell fracture in the
f. 30. lowest third. There is a moderate sequestrum in the extremity, which is not rounded, although a fringe of callus has appeared around the border.

Private H. D. F., "F," 28th Iowa, 16: Cedar Creek, 19th October; admitted hospital, with arm amputated in the lowest third, Baltimore, 26th December, 1864; reamputated by Assistant Surgeon G. M. McGill, U. S. Army, 30th March; discharged, 21st June, 1865.

Contributed by the operator.

2894. The stump of the left humerus, seven days after amputation in the middle third. There are no pathological
f. 31. changes in the bone, except an apparent loss of periosteum at the extremity.

Corporal J. B. R., "K," 57th Massachusetts: Petersburg, 17th June; admitted hospital, Washington, 24th June; amputated after fracture of the wrist, 19th July; died, 26th July, 1864.

Contributed by Acting Assistant Surgeon V. B. Hand.

See 2852, **IX.** A. B. f, 57.

656. Three inches of the stump of the humerus reamputated, an unknown period after amputation. An imperfect
f. 32. sequestrum of three inches is enclosed. The extremity is rounded, but imperfect. A large cloaca exists on one side. The particular feature is the hyperostosis which has given the bone a variable diameter of from one and a half to one and three-fourths inches.

Contributor and history unknown.

See 2774, **XXI.** A. B. b. 29.

443. The stump of the right humerus, four weeks after amputation in the middle third. The extremity is necrosed,
f. 33. showing a line of separation.

Private J. Van D., "K," 107th New York, 24: ulna fractured in upper third, Gettysburg, 3d July; arm amputated, 18th August; died exhausted, 12th September, 1864.

Contributor unknown.

For other illustrations, see 267, **V.** A. B. d. 3; 3550, **VI.** A. A. c. 21.

g. SEQUESTRA.

3182. Two small irregular sequestra, representing three-fourths of the circumference of the shaft of the humerus, with
g. 1. an extreme length of two inches, removed two months after an excision.

Private J. W. P., "C," 148th Pennsylvania, 31: elbow fractured, Spottsylvania, 10th May; admitted hospital, Washington, 31st May; lower portion of humerus excised, 25th June; specimen removed, 31st August; deserted while on furlough, 30th November, 1864.

Contributed by Assistant Surgeon Philip C. Davis, U. S. Army.

1806. A delicate tubular sequestrum, nearly two inches in length, removed from the stump of the left humerus ten
g. 2. weeks after amputation.

Private W. L., "C," 148th Pennsylvania: Chancellorsville, 3d May; amputated, 11th May; admitted hospital, Point Lookout, Md., 14th June; stump attacked with hospital gangrene, 10th—12th July; specimen removed, 21st July, 1863. Recovered.

Contributed by Surgeon A. Heger, U. S. Army.

See class **XXIII.** A. B.

975. A semi-tubular sequestrum, two and a half inches in length, from the stump of the humerus.
g. 3. Contributor and history unknown.

1266. A tubular sequestrum, two inches in length, removed from the stump of the left humerus three months after
g. 4. amputation in the upper third.

Private P. H., "C," 2d U. S. Infantry: Fredericksburg, 13th December; amputated, Point Lookout, Md., 21st December, 1862; specimen removed, Washington, 23d February, 1863. Discharged the service with a good stump.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

142. A sequestrum, tubular for one and a half inches, with an extreme length of three and a half inches, from the
g. 5. stump of the left humerus, amputated for a shell contusion of the forearm.

Private A. F. M., "A," 17th Michigan: Petersburg, 25th March; admitted hospital, Washington, 2d April; discharged the service, 26th July, 1865.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

3223. Two delicate sequestra, respectively three and four inches in length, removed from the stump of the right
g. 6. humerus three months after amputation.

Corporal C. H. G., "C," 43d New York, 19: wounded and amputated before Petersburg, 27th March; admitted hospital, Albany, 2d July; specimen removed, 5th July; discharged the service, 4th October, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

4016. Four fragments of a sequestrum, four inches in length, from the left humerus three months after gunshot fracture.
g. 7. About one-third of the circumference is involved.

Sergeant J. W. R., "C," 93d New York, 25: Petersburg, 22d June; admitted hospital, Albany, 20th July; specimen removed, 26th September, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

4352. A delicate semi-tubular sequestrum, four inches in length, from the middle of the right humerus ten months after
g. 8. amputation.

Private R. W., "B," 10th U. S. Infantry, 40: wounded and amputated, North Anna, Va., 24th May, 1864; specimen removed by Assistant Surgeon P. S. Conner, U. S. Army, Fort Columbus, N. Y., 26th March; discharged the service, 12th July, 1865.

Contributed by the operator.

4333. A heavy tubular sequestrum, three and a half inches in length, removed from the stump of the lowest third of the
g. 9. left humerus.

Private E. McK., "C," 2d Massachusetts Cavalry: Winchester, 13th September, 1864; specimen removed, New York, 28th March, 1865.

Contributed by Acting Assistant Surgeon Bradford.

3727. A heavy tubular sequestrum, four and a half inches in length, from the stump of the left humerus.
g. 10. Sergeant N. S., "C," 9th Veteran Reserve Corps, 28: forearm fractured by a conoidal ball, Defences of Washington, 11th July, 1864; transferred to Philadelphia, 18th May, 1865.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

See 3686, **VIII.** A. B. d. 41.

2209. A sequestrum, five inches in length, from the stump of the left humerus three and a half months after amputation.
g. 11. First Lieutenant B. A., "D," 38th Alabama (Rebel): Mission Ridge, 25th November; amputated at the junction of the lower thirds for secondary hæmorrhage, Chattanooga, 13th December, 1863; specimen removed, Nashville, 27th March, 1864. Doing well.
Contributed by Acting Assistant Surgeon G. P. Hackenburg.

2434. A heavy tubular sequestrum, three and a half inches in length, removed from the upper third of the left arm one
g. 12. month after injury.
Private A. M. A., 16th Michigan: a conoidal ball passed through the arm, grazing the bone, 30th September; hospital gangrene attacked the wound and exposed four inches of bone, Washington, October, 1864; Surgeon D. Stanton, U. S. Vols., cut down, enlarged a cloaca in the involucrum, broke off an inch of the sequestrum and removed the specimen, Detroit, October, 1865; almost healed, 5th February, 1866.
Contributed by the operator.

For other illustrations, see 3913, **VI.** A. B. d. 31.

B. Injuries not caused by Gunshot.

A. Primary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Excisions.
- d. Amputations.
- e. Other operations.

b. Complete Fractures.

1786. The left humerus, nearly transversely fractured in the middle third by a city passenger car. A fragment, three-
b. 1. fourths of an inch square, from the inner border, is wanting at the seat of fracture. On the right side the radius and ulna and on the left the radius, scapula and clavicle, anteriorly all the ribs except the twelfth, and posteriorly all but the first, eleventh, and twelfth, were fractured.
J. G., employé Subsistence Department, 36: run over by a city passenger car and died in one hour, Washington, 10th August, 1863.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.
See 1631, **IV.** B. A. b. 1; 1784, **VIII.** B. A. b. 1.

1639. The left humerus. A nearly transverse fracture exists just below the surgical neck. Above the line of fracture
b. 2. the laminated structure on the posterior surface is crushed in, and a deep vertical fissure extends to the anatomical neck. Inferiorly two lines of fracture embrace a portion of shaft five inches long by one and a half broad, which is again divided longitudinally. A fissure, three inches in length, extends down the inner border.
V. K., employé Subsistence Department: crushed by the cars, Washington, 20th July; died 23d July, 1863.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.
See 3201, **IV.** B. A. b. 2; 1640, **XVIII. II.** B. B. a. 1.

2997. The upper third of the left humerus, with the surgical neck broken into many fragments by being run over by a
b. 3. horse car. The stomach, duodenum, spleen, liver and left kidney were lacerated.
Private H. B., "A," 77th Illinois, 21: New Orleans, 25th December, 1863. Did not rally from the shock.
Contributed by Assistant Surgeon P. S. Conner, U. S. Army.
See class **XX.** B. A. a.

2993. A part of the left humerus, transversely fractured at the junction of the lower thirds. There is no trace of any
b. 4. reparative process, and it is probable the specimen is from some case that was primarily fatal by additional and independent injury.

Contributed by Assistant Surgeon P. S. Conner, U. S. Army.

For other illustrations, see 2977, **XI.** B. A b. 1; 2991, **XIII.** B. A. c. 2.

B. Secondary conditions.

a. Contusions and partial fractures.
b. Complete fractures.
c. Excisions.
d. Amputated fractures.
e. Other operations.
f. Stumps.
g. Sequestra.

b. Complete Fractures.

1849. A portion of the shaft of the right humerus, transversely fractured by a fall of one hundred and ten feet from a
b. 1. bridge, three days after injury. The specimen shows a thin periosteal coating. A compound fracture of the radius and ulna occurred at the same time. The fall was somewhat broken by striking timbers in the descent.

J. N., civilian: admitted hospital, Washington, 23d July; amputated at the surgical neck for sphacelus by Assistant Surgeon W. Thomson, U. S. Army, 26th July; arm nearly healed at the end of four weeks; retained in hospital for contusion of hip until discharged, perfectly well, 13th November, 1863.

Contributed by the operator.

530. The right humerus, exhibiting a consolidated fracture in the lowest fourth of the shaft. Very firm union, with
b. 2. displacement inward of one and a half inches, has occurred. The specimen, which appears to have been from a female, was picked up on an ancient battle-field on Oahu, Sandwich Islands, known by tradition to be at least two hundred years old.

Contributed by Assistant Surgeon William R. De Witt, jr., U. S. Vols.

C. Diseases.

4338. The upper portion of the left humerus, after death from secondary hæmorrhage following a wound of the axillary
C. 1. artery. The point of interest is the condition of the head, which was thus described at the autopsy: "No pus was found in the shoulder joint. The head of the humerus was very soft, and on cutting through the softened articular cartilage a pasty substance was found beneath it taking the place of much of the spongy extremity of the bone. This pasty substance was the broken-down spongy substance Other organs normal. In the specimen it will be seen that about one-third of the border of the cartilage of incrustation is detached from the bone: this is due to manipulation and maceration." The shaft is irregular and superficially necrosed. A section appears to have been made about the original point of amputation.

Private G. R. P., 3d Maine, 21: shoulder penetrated by buckshot and humerus fractured by a round ball, Virginia, May; arm primarily amputated in the middle third; ligated for secondary hæmorrhage, New York Harbor, 28th July; died after secondary hæmorrhage, 5th August, 1862.

Contributed by Acting Assistant Surgeon S. Teats.

See 1827, **VI.** A. B. f. 28; 4339, **XVIII. II.** A. B. b. 8.

VII. INJURIES AND DISEASES OF THE ELBOW JOINT.

- **A.** Gunshot Injuries.
  - **A.** Primary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Excisions.
    - d. Disarticulations.
    - e. Amputations in the humerus.
    - f. Other operations.
  - **B.** Secondary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Caries consecutive upon other injury than fracture of the bones of the joint.
    - d. Excisions.
    - e. Disarticulations.
    - f. Amputations in the humerus.
    - g. Other operations.
    - h. Stumps
    - i. Sequestra.
- **B.** Injuries not caused by Gunshot.
  - **A.** Primary Conditions.
    - a. Contusions and partial fractures and dislocations.
    - b. Complete fractures.
    - c. Excisions.
    - d. Disarticulations.
    - e. Amputations in the humerus.
    - f. Other operations.
  - **B.** Secondary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Dislocations.
    - d. Caries consecutive upon other injury.
    - e. Excisions
    - f. Disarticulations.
    - g. Amputations in the humerus.
    - h. Other operations.
    - i. Stumps.
    - k. Sequestra.
- **C.** Diseases.

VII. ELBOW JOINT.

A. Gunshot Injuries.

A. Primary Conditions.

a. Contusions and partial fractures.
b. Complete fractures.
c. Excisions.
d. Disarticulations.
e. Amputations in the humerus.
f. Other operations.

a. Contusions and Partial Fractures.

1538. a. 1. The lower half of the left humerus, fractured above the condyles by a conoidal ball passing transversely. A partial fracture extends into the joint. The upper portions of the radius and ulna are attached.
Contributed by Surgeon J. H. Brinton, U. S. Vols.

526. a. 2. The lower half of the left humerus, transversely perforated one inch above the condyles. The shaft is shattered, and fissures extend to the margin of the olecranon fossa. The upper portions of the bones of the forearm are attached to the specimen.
Contributed by Assistant Surgeon W. Moss, U. S. Vols.

b. Complete Fractures.

478. b. 1. The bones of the forearm, from which the lower portions have been removed after comminution. The point of interest in the specimen is a fracture of the coronoid process unconnected with the severe injury in the lower part of the limb.
Contributed by Surgeon —— Leonard, 59th New York.
See class **VIII.** A. a. b.

1884. b. 2. The bones of the right forearm. The upper fourths of the shafts are entirely wanting; the head of the radius is fractured antero-posteriorly; the termination of the fracture in the shaft of the ulna is jagged and nearly transverse.
Contributed by Surgeon J. Dwinelle, 106th Pennsylvania.

474. b. 3. The bones of the left forearm. Excepting two inches of the upper and one and a half inches of the lower extremities, the ulna has been carried away. The coronoid process is split off, but not displaced. The lowest third of the radius is comminuted, and an independent, nearly transverse fracture exists in the upper third.
Contributed by Assistant Surgeon W. Moss, U S. Vols.
See class **VIII.** A. a. b.

3135. b. 4. The lower extremity of the right humerus. A bullet has impinged on the anterior face at the junction of the inner condyle and trochlea, crushing the laminated structure. An oblique fracture extends upward and outward one and a half inches, and downward through the ulnar face of the trochlea.
Received from the Army of the Potomac.

3077. b. 5. The bones of the left elbow. The humerus is transversely fractured one and a half inches above the condyle by a missile striking and comminuting the outer border; an oblique fracture extends two and a half inches above this point, and is intersected by a perpendicular fracture running up the inner side; two oblique fractures below the transverse line converge and as one divide the trochlea at its middle.
Received from the Army of the Potomac.

2668. The bones of the left elbow. The humerus is fractured nearly transversely about two inches above the condyles;
b. 6. thence a perpendicular fracture extends downward into the articulation, and an oblique fissure on the anterior surface to the outer condyle; an oblique fracture on the anterior surface extends about one inch above the transverse fracture; the posterior portion of the shaft above the articulation is comminuted and wanting. The missile appears to have impinged against the inner border of the bone one inch above the condyle.
Received after Chancellorsville.

2634. The bones of the left elbow. An oblique fracture extends across the shaft two inches above the condyles; from
b. 7. this a perpendicular fracture passes down directly through the trochlea; midway, a transverse fracture divides the outer half; and, posteriorly, comminuted portions are wanting.
Received after Chancellorsville.

3511. The extremity of the right humerus, perforated through the olecranon depression. The trochlea is fractured
b. 8. through the middle, and both condyles are split off, although retained in position.
Contributed by Surgeon J. H. Brinton, U. S. Vols.

3196. The bones of the left elbow. The humerus is comminuted above the condyles and wanting on the posterior
b. 9. surface; a complete fracture extends through the trochlea.
Received from the Army of the Potomac.

100. The bones of the right elbow. A conoidal ball, which is attached, battered, has struck the ulna from the left and
b. 10. rear, has destroyed the olecranon, split the coronoid process by a fracture running through it, and created a nearly complete oblique fracture for two inches of the shaft. The inner condyle is destroyed and the humerus comminuted for nearly three inches.
Contributed by Surgeon J. H. Brinton, U. S. Vols.
See class **XXVII.** B. B. d.

4017. The bones of the right elbow. The outer condyle and radial articulation of the humerus, the olecranon, and
b. 11. the posterior portion of the upper extremity of the ulna have been carried away. The ulna is obliquely fractured about two inches from its extremity.
Received from Ninth Corps Hospital.

110. The bones of the left elbow. A conoidal ball, which is attached, partially flattened, entered from without,
b. 12. destroyed the outer condyle and the radial portion of the trochlea, and fractured the shaft so as to split off the remainder of the epiphysis. Another fracture extends obliquely up the humerus, crossing it three and a half inches from the extremity. The bones of the forearm are uninjured. A fragment of cartridge-paper is still held in the cup of the ball.
Contributed by Surgeon J. H. Brinton, U. S. Vols.
See class **XXVII.** B. B. d.

2688. The bones of the right elbow. A bullet, which appears to have passed antero-posteriorly through the joint, has
b. 13. shattered the ulnar processes and split the humerus for two inches.
Contributor and history unknown.

2653. The lower half of the left humerus and upper portions of the bones of the forearm. A ball which has passed
b. 14. through the coronoid depression, shattering the articulation, has obliquely fractured the shaft for four inches.
Received after Chancellorsville.

3519. The lower extremity of the right humerus, shattered by a round ball. The epiphyses are broken from the shaft,
b. 15. two complete fractures extend through the trochlea, an oblique fracture extends up the diaphysis, which is irregularly fractured three inches above the articulation, and one square inch of bone is wanting from the olecranon fossa. The specimen illustrates how great injury may be inflicted by a round ball. This bullet passed out at the middle of the arm anteriorly and wounded the thumb. A buckshot from the same charge entered the thorax near the ninth dorsal vertebra and was found under the integument in front.
Private C. B., "L," 112th Pennsylvania: wounded in attempting to escape from the Provost Guard, and admitted hospital, Washington. Died in four hours.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.

c. Excisions.

1378. The olecranon and a spicula of shaft of one inch. A vertical fissure extends nearly through the process.
c. 1. Private J. M., "G," 91st Pennsylvania: excised two days afterward by Assistant Surgeon B. Howard, U. S. Army.
Contributed by the operator.

1729. Six fragments, representing the outer condyle and adjoining portion of the left humerus after fracture by a pistol ball.
c. 2. Private J. A., "G," 9th New York Cavalry: wounded, 14th September; admitted hospital, and specimen removed by Surgeon D. W. Bliss, U. S. Vols., Washington, 15th September; died from pyæmia, 1st October, 1863.
Contributed by the operator.

521. Three inches of the upper extremity of the left ulna, greatly shattered and excised.
c. 3. Contributed by Surgeon De Benneville, 11th Pennsylvania Reserves.

2144. Two inches from the lower extremity of the humerus and a portion of the olecranon, excised from the right
c. 4. elbow for perforation by a conoidal ball and destruction of the joint.
Private J. H. C., "B," 96th Illinois: Chickamauga, 19th September; excised by Surgeon I. Moses, U. S. Vols., the same day. Furloughed from Murfreesboro' "with a very useful hand."
Contributed by the operator.

3234. Two inches of the lower extremity of the left humerus, excised for shell fracture of the outer condyle. The
c. 5. appearance simulating periosteal disturbance is due to the mode of preparation
Private U. H., "C," 1st Massachusetts: wounded, 18th May, 1864; excised by Surgeon C. K. Irwin, New York Volunteers, the same day.
Contributed by the operator.

2224. Two and a half inches of the lower extremity of the right humerus, shattered by the transverse oblique passage
c. 6. of a bullet, and excised.
Private J. M., "D," 69th New York, 33: Fredericksburg, 13th December; admitted hospital, Washington, 14th; excised, 15th December, 1862. Recovered with passive motion of the joint.
Contributed by Surgeon D. W. Bliss, U. S. Vols.

1421. Three inches of the lower extremity of the left humerus, comminuted by perforation from behind forward above
c. 7. the outer condyle, and excised.
Second Lieutenant E. D. H., "C," 8th Connecticut: near Drury's Bluff, 14th May, 1864; excised on the field by Surgeon M. Storrs, 8th Connecticut. Recovered with a useful arm.
Contributed by the operator.

1282. Three inches excised from the lower extremity of the right humerus. The olecranon was also removed, but has
c. 8. not been preserved. The humerus was nearly transversely fractured, with some comminution, two inches above the articulation, and the joint was opened by the downward course of the ball.
Major B. C. S., 6th Ohio Cavalry, 26: Aldie, 17th June; excised six hours afterward by Assistant Surgeon G. M. McGill, U. S. Army; died of tetanus, 25th June, 1863.
Contributed by the operator.

1155. Four and a half inches of the lower extremity of the right humerus, excised for perforation of the bone two
c. 9. inches above the articulation. Two complete fractures pass through the articulation, above which the bone is thoroughly shattered.
Captain W. G. T., Staff of General Slocum: Chancellorsville, 2d May, 1863; excised by Surgeon H. E. Goodman, 28th Pennsylvania. Recovery, except as to pronation and supination, occurred in four months.
Contributed by the operator.

2040. Two inches from the lower extremity of the left humerus, and two inches of the shaft and the processes of
c. 10. the ulna, excised for perforation and shattering of the articulation by a conoidal ball.
Private C. E. H., "A," 14th Connecticut: Morton's Ford, Va., 6th February; excised at Second Corps Hospital, 8th; died from pyæmia, 8th February, 1864.
Contributed by Surgeon J. Dwinelle, 106th Pennsylvania.

For other illustrations, see 1741, **VI.** A. B. f. 29; 3651, **VII.** A. B. f. 13; 772, **VII.** A. B. f. 23; 2010, **VII.** A. B. f. 40; 3649, **VII.** A. B. f. 50; 1590, **VII.** A. B. f. 51; 1664, **VII.** A. B. f. 76; 2325, **VII.** A. B. f. 70; 3248, **VII.** A. B. f. 72; 225, **VII.** A. B. f. 84; 3209, **VII.** A. B. f. 94; 3397, **VII.** A. B. f. 115.

d. Disarticulations.

271. The lower half of the right humerus, after disarticulation at the elbow. The extremity is somewhat eroded,
d. 1. while on the posterior surface of the outer condyle is a thin deposit of callus.
Private C. A., "B," 2d Maryland Artillery: forearm shattered and removed at the elbow, Malvern Hill, 1st July; captured and taken to Richmond; admitted hospital, Chester, Penna., 29th July; amputated at the shoulder joint for bulbous condition of the nerves of the stump by Acting Assistant Surgeon J. A. Draper, 9th October, 1862. Recovered.
Contributed by the operator.
See class **V**, A. B. d.

e. Amputations in the Humerus.

3008. The bones of the left elbow, showing the coronoid process and adjoining portion of the shaft of the ulna shattered
e. 1. and the olecranon broken off without injury to either of the other bones. Primary amputation was probably performed.
Received from the Army of the Potomac.

2863. The lowest fourth of the right humerus, apparently amputated. The inner condyle has been shattered and is
e. 2. missing, and an oblique fracture extends up the shaft to the point of section.
Received from the Army of the Potomac.

2727. The bones of the left elbow, with the upper third of the ulna completely comminuted. The specimen appears to
e. 3. have been a primary amputation in the lowest third of the humerus.
Received after the Wilderness.

3122. The bones of the left elbow, apparently after primary amputation in the lowest third. The outer condyle and
e. 4. adjoining articular surface are carried away and the head and neck of the radius shattered.
Contributor and history unknown.

3088. The bones of the right elbow, after amputation. A ball appears to have passed obliquely from rear to front,
e. 5. breaking the posterior surface of the olecranon and chipping the outer condyle. A partial fracture extends above the articulation in the humerus, and for the length of the specimen in the ulna.
Private S. W. W., "F," 2d U. S. Sharpshooters, (Volunteers,) 35: Petersburg, 16th June; amputated in the field by Dr. A. Garcelon; admitted hospital, Washington, 28th June; died, 4th August, 1864.
Contributed by the operator.

497. The bones of the left forearm and a portion of the humerus, probably after primary amputation in the lowest
e. 6. third. The radius is comminuted in its upper half, excepting the head, and the ulna in the upper third, the fracture extending into the joint. An oblique fracture of the humerus extends into the joint.
Contributed by Surgeon De Benneville, 11th Pennsylvania Reserves.

1578. The bones of the left elbow, apparently after primary amputation in the lowest third of the humerus. The
e. 7. olecranon and upper part of the shaft are split off through the coronoid process by a conoidal ball which fractured the inner border of the ulna while flexed, and which shattered the inner condyle where it lodged and is preserved in the specimen.
Contributor and history unknown.
See class **XXVII.** B. B. d.

3219. The bones of the right elbow, amputated in the lowest third after fracture of the joint. A conoidal ball at fifty
e. 8. yards struck the outer condyle and passed transversely inward and downward, grazing the head of the radius and shattering the upper two and a half inches of the ulna.
Captain B. B. B., "I," 1st New Jersey: Spottsylvania, 12th May, 1864; amputated in the field by Surgeon L. W. Oakley, 2d New Jersey, the same day. Recovered and served in the Veteran Reserve Corps.
Contributed by the operator.

2242. The bones of the left elbow, after amputation in the lowest third of the humerus for fracture by a conoidal bullet
e. 9. which lodged against the sigmoid notch. The upper fourth of the ulna and the inner condyle are shattered, and a fissure extends the length of the specimen on the posterior surface of the humerus.
Private C. W., "K," 5th New Jersey: McLean's Ford, Va., 15th October, 1863. Amputated in the field by Surgeon H. F. Van Derveer, 5th New Jersey, the same day. Recovered.
Contributed by the operator.

2037. The bones of the right elbow, amputated in the lowest third of the humerus. A conoidal ball passing laterally
e. 10. shattered the radius just below its head through which a transverse fracture passed, and, impinging against the ulna, caused a nearly transverse fracture. The case appears to be one in which an excision of the extremity of the radius would have been advisable.
Corporal T. L., "H," 126th New York: Morton's Ford, Va., 6th February; amputated, 8th February; transferred to Veteran Reserve Corps, 31st August, 1864.
Contributed by Surgeon W. W. Potter.

4024. The lowest third of the right humerus, which appears to have been amputated after fracture of the joint. A
e. 11. bullet striking the coronoid depression perforated the bone, splitting off the inner condyle, fracturing the ulnar portion of the trochlea, shattering the extremity of the shaft and finally producing a nearly transverse fracture midway between the articulation and the line of section.

Received from Ninth Corps Hospital.

4109. The lowest third of the right humerus, amputated for fracture of the joint. A bullet has perforated the bone
e. 12. from the front just above the condyles, producing two complete fractures downward through the trochlea, besides several in other directions, and much loss of substance from the posterior part of the bone.

Private J. W. McL., 3d Maine Light Artillery, 23: amputated by Surgeon J. S. Jamison, 86th New York, 12th September, 1864.

Contributed by the operator.

2847. The lower portion of the left humerus. A double oblique fracture has occurred just above the condyles, and the
e. 13. inner articular surface has been carried away by a conoidal ball.

Private W. A., "B," 148th Pennsylvania: Cold Harbor, 3d June, 1864; amputated on the field by Surgeon D. E. Kelsey.

Contributed by the operator.

4025. The bones of the right elbow, with the head of the radius and lowest third of the shaft of the humerus, shattered.
e. 14. A complete fracture extends through the trochlea, but the condyles are not directly injured. The wound appears to have been received when the arm was completely flexed.

Contributor and history unknown.

2248. The lowest third of the right humerus and the two upper thirds of the bones of the forearm. When the limb
e. 15. was in a flexed position a bullet appears to have struck the ulna on the anterior surface near the junction of the upper thirds, and then to have passed obliquely upward, destroying the upper extremity of the radius, except the head, whence it perforated the humerus above the condyles, causing a complete fracture through the trochlea. Primary amputation was probably performed.

Contributor and history unknown.

3134. The lower half of the left humerus and upper portions of the bones of the forearm, after fracture from spherical
e. 16. case. The head of the radius is partially fractured, the outer condyle shattered, and an oblique fracture extends four inches up the shaft.

Private C. W. A., "C," 1st Maine Heavy Artillery, 23: Petersburg, 18th June; amputated by Surgeon J. S. Jamison, 86th New York, in the field, the same day; admitted hospital, Washington, 28th June; died of pyæmia, 21st July, 1864.

Contributed by the operator.

2732. The lower half of the left humerus, amputated after fracture of the lowest fourth with comminution of the inner
e. 17. condyle. The flattened conoidal ball is attached to the specimen as it lodged. The section has been made three inches above the highest point of fracture.

Private F. H. H., "B," 7th Pennsylvania Reserves, 46: Spottsylvania, 10th May, 1864; amputated on the field the same day. Recovered.

Received from the Army of the Potomac.

See class **XXVII.** B. B. d.

3227. The lower half of the right humerus and the upper portions of the bones of the forearm. The inferior portion of
e. 18. the outer condyle and the anterior face of the head of the radius are fractured, and the humerus is comminuted at the junction of the lower thirds. The injuries appear to have been inflicted by separate missiles, probably fragments of shell.

Private P. M., "A," 5th New Jersey, 28: Wilderness, 10th May; amputated in the field, 11th May, 1864; transferred to New York City, 20th March, 1865. Artificial limb furnished.

Contributed by Surgeon C. C. Jewett.

3023. The bones of the left elbow, after primary amputation in the lowest third of the arm. The olecranon is badly
e. 19. fractured, the outer condyle carried away and the head of the radius chipped.

Private C. C., "L," 1st Massachusetts Artillery, 21: Petersburg, 16th June; amputated on the field; admitted hospital, Alexandria, 29th June; discharged the service, 29th November, 1864.

Received from the Army of the Potomac.

2951. The lower portion of the left humerus and upper portions of the bones of the forearm, greatly shattered by a
e. 20. conoidal ball.

Private J. B., "G," 7th New York (?) Heavy Artillery: wounded before Petersburg, and amputated in the upper third of the humerus in the field.

Received from the Army of the Potomac.

B. Secondary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Caries consecutive upon other injury.
- d. Excisions.
- e. Disarticulations.
- f. Amputations in the humerus.
- g. Other operations.
- h. Stumps.
- i. Sequestra.

a. Contusions and Partial Fractures.

399. a. 1. The lower half of the right humerus and the upper portions of the bones of the forearm. The humerus is fractured one and a half inches above the condyle, from which a fissure on each surface extends into the joint. The fractured extremities are necrosed, but the joint does not appear to have suffered.

Private E. S. E., company and regiment unknown: probably before Richmond, June; amputated Baltimore, 30th July, 1862.
Contributed by Surgeon L. Quick, U. S. Vols.

3901. a. 2. The lowest third of the right humerus. A conoidal ball from behind chipped the outer border just above the condyle, opening the joint. Superficial necrosis of the adjacent bone and the development of numerous foramina are observable.

Private A. B., "C," 38th Georgia (Rebel): Gettysburg, 1st July; admitted hospital, Frederick, 6th; respiration ceased while under chloroform for resection, which was suspended and laryngotomy performed, 18th; died, 28th July, 1863.
Contributed by Assistant Surgeon R. F. Weir, U. S. Army.
See 4080, **XIX.** B. B. b. 1.

3764. a. 3. The bones of the right elbow. The outer border of the head of the radius appears slightly chipped and the articulation is carious at points from the resulting inflammation.

Contributor and history unknown.

b. Complete Fractures.

689. b. 1. The two lower thirds of the left humerus, shattered at their junction by grapeshot. An oblique fracture extends into the joint, breaking off the outer condyle, and a fissure runs up the entire length of the specimen above the fracture on the posterior surface. Inflammation of the joint has deposited a moderate periosteal layer.

Contributed by Assistant Surgeon J. E. Semple, U. S. Army.

25. b. 2. The lowest fourth of the right humerus and upper thirds of the bones of the forearm. The inner condyle is fractured by a round ball which entered posteriorly and escaped on the anterior surface of the forearm just above the wrist. The articular extremities are carious.

Private S. M., "D," 10th Pennsylvania Reserves: Gaines' Mill, 27th June; admitted hospital, Washington, 4th July, 1862.
Contributed by Acting Assistant Surgeon D. N. Rankin.

3700. b. 3. The lowest third of the right humerus, with two oblique lines of fracture entering the articulation. The bullet appears to have impinged just above and within the coronoid fossa. No reaction occurred after the reception of the wound.

——— ———, company and regiment unknown: Grahamville, S. C., 30th November; died from tetanus, 7th December, 1864.
Contributed by Surgeon John Trenor, jr., U. S. Vols.

2265. b. 4. The upper half of the left radius. The head is broken into several pieces, and oblique and longitudinal fractures extend down the shaft four inches The ball, flattened, is mounted as found against the head of the bone.

Private D. H., "G," 2d Vermont: Wilderness, 5th May; died, Washington, 14th May, 1864.
Contributed by Acting Assistant Surgeon Fred. G. H. Bradford.
See class **XXVII.** B. B. d.

3198. b. 5. The lowest third of the left humerus, from which the outer condyle has been broken. There are traces of periosteal disturbance.

Received from the Army of the Potomac.

605. The lowest fifth of the right humerus. A bullet appears to have entered on the anterior surface above the outer
b. 6. condyle, completely fracturing the shaft and splitting off the upper portion of the laminated structure of the bone posteriorly. The posterior portion of the outer condyle was broken off. The first rib and parts of the spinous processes of two cervical vertebræ were fractured and the lung wounded at the same time by another missile.

Private W. B T., "E," 4th Maine: Fredericksburg, 13th December; admitted hospital, Washington, 18th; died from secondary hæmorrhage within the thorax, 28th December, 1862.

Contributed by Acting Assistant Surgeon F. P. Sprague.

See 603, **XIX.** A. B. a. 27.

730. The lower half of the left humerus. A leaden canister shot, passing transversely, struck the shaft just above the
b. 7. inner condyle, crushing its outer border and completely fracturing the trochlea in its centre. Particles of lead remain in the cancellated structure.

Contributed by Assistant Surgeon J. E. Semple, U. S. Army.

2192. The bones of the left elbow, showing a severe fracture from a conoidal ball which, battered, is lodged in the outer
b. 8. condyle. The outer condyle is destroyed, and a perpendicular fracture extends upward two inches.

Private A. H., "I," 86th Indiana, 26: Mission Ridge, 25th November: admitted hospital, Nashville, 3d December; died from pyæmia, 16th December, 1863.

Contributed by Acting Assistant Surgeon M. L. Herr.

See class **XXVII.** B. B. d.

3287. The lowest five inches of the right humerus, with a curious longitudinal fracture of the shaft. The lowest
b. 9. internal two inches are wanting. A slight periosteal deposit is to be observed.

Contributor and history unknown.

3506. The lowest third of the humerus and upper halves of the bones of the forearm. The outer condyle has been shot
b. 10. away and the articular surfaces are necrosed. A cavity, one-half inch in depth, extends transversely from the base of the condyle into the trochlea.

Contributed from Nashville by Surgeon W. R. Pounds.

876. The bones of the left elbow. A missile appears to have perforated the joint, breaking the trochlea and carrying
b. 11. away the olecranon. An oblique fracture extends in both the ulna and humerus for two inches from the articulation. No operation appears to have been performed.

Contributed by Acting Assistant Surgeon J. Leidy.

2189. The bones of the left elbow, with fractures of the face of the olecranon, the inner condyle and trochlea. The ulnar
b. 12. articulating surfaces are carious, and a slight plate of necrosed bone exists in the upper part of the coronoid fossa.

Private W. K., "E," 32d Indiana: Mission Ridge, 25th November; admitted hospital, Nashville, 3d December; died exhausted, 24th December, 1863.

Contributed by Acting Assistant Surgeon Preston Peter.

196. The bones of the left elbow, fractured. A bullet has struck the trochlea on its anterior face and shattered the
b. 13. extremity of the humerus; three inches of the upper part of the ulna are comminuted, and the head of the radius is fractured.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

678. The bones of the left elbow. The external condyle has been split off and the olecranon destroyed, as if by the
b. 14. oblique passage of a bullet. The articular surfaces and the fractured extremities are necrosed.

Private G. S. R., "G," 3d Maine: Fredericksburg, 13th December; admitted hospital, Washington, 23d December, 1862; died, 13th January, 1863.

Contributed by Surgeon H. Bryant, U. S. Vols.

3775. The bones of the right elbow, exceedingly carious, with the articulation completely destroyed. The head of the
b. 15. radius appears to have been fractured from the rear.

Contributor and history unknown.

3781. The bones of the right elbow, with the outer condyle wanting. Ulceration has completely destroyed the articular
b. 16. surfaces. Thin osseous deposits rest on the shafts near the joint.

Received from Nashville, Tenn.

418. The upper portions of the left radius and ulna. The coronoid process has been shot away and the articular
b. 17. surfaces are carious.

Contributed by Surgeon L. Quick, U. S. Vols.

3778. The bones of the right elbow, after fracture of the outer condyle. The articular surfaces are destroyed by
b. 18. ulceration. A very slight layer of callus occurs on the shaft of the humerus and the posterior portions of the ulna and radius.

Contributor and history unknown.

956. The bones of the left elbow, fractured just above the condyles, with the articular surfaces destroyed by
b. 19. ulceration.

Contributor and history unknown.

1830. The lower portion of the left humerus and upper part of the ulna. The bone just above the outer condyle has
b. 20. been gouged out. The articulation has been destroyed by ulceration. A slight periosteal deposit exists on the shaft of the humerus.

Received after Gettysburg.

3556. The bones of the right elbow, with the outer condyle and head of the radius carried away by a conoidal ball.
b. 21. The articular surfaces are carious.

Private B. McB., "H," 88th New York, 25: Wilderness, 5th May; admitted hospital, Washington, 11th May; died from pyæmia, 13th June, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

1244. The bones of the right elbow, after death from pyæmia. A complete fracture extends across the humerus above
b. 22. the condyles, below the line of which the outer half is carried away. The articular surfaces are carious, and the fragments of the humerus are necrosed.

Private J. M., "D," 102d New York: Chancellorsville, 3d May; admitted hospital, Washington, 8th; died from pyæmia, 26th May, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army

2640. The bones of the right elbow, with the upper third of the radius and the outer condyle shattered.
b. 23. Contributor and history unknown.

1829. The bones of the right elbow. The external condyle has been fractured but not displaced. A moderate effusion
b. 24. of callus has occurred on the shaft above it. The articular surface of the humerus is necrosed.

Received after Gettysburg.

1834. The two lower thirds of the left humerus and the upper halves of the bones of the forearm. The ulna was com-
b. 25. minuted at the coronoid process. The olecranon proper is not injured. Suppuration has destroyed the articulation. Superficial necrosis occupies the entire anterior surface of the shaft, and a friable periosteal deposit covers the remainder of the humerus.

Received after Gettysburg.

1558. The bones of the left elbow. The head of the radius is shattered; the olecranon and coronoid processes are
b. 26. broken off; the inner condyle is fractured, and an oblique fracture extends two inches up the shaft. There are slight periosteal deposits about the fracture.

Received after Gettysburg.

2191. The bones of the right elbow, three months after injury. The olecranon is fractured and nearly destroyed; the
b. 27. extremities of both bones of the forearm and the articular surface of the humerus are necrosed. The periosteal disturbance has extended several inches up the shaft.

Private W. A. G., "A," 95th Ohio: Chickamauga, 20th September; admitted hospital, Nashville, 14th December: died exhausted, 25th December, 1863.

Contributed by Acting Assistant Surgeon G. P. Hackenburg.

698. The bones of the right elbow. The head and upper two inches of the shaft of the radius are comminuted, and
b. 28. the external condyle is broken off. A slight deposit of callus covers the radial fragments and retains them in irregular apposition. The articular surfaces are eroded.

Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

3718. The bones of the left elbow for three and a half inches beyond the joint. The joint was opened by a conoidal
b. 29. ball, and the extremities of the three bones are carious and absorbed in a notable degree, the humerus being fairly honeycombed. This man was also wounded in the skull by a fragment of shell, which lodged in the brain.

Sergeant J. L, "I," 153d New York: Cedar Creek, 19th October; died, Baltimore, 20th November, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

See 3729, **I.** A. B. b. 51; 3725, **I.** C. B. b. 20.

2906. The bones of the right forearm and lowest fourth of the humerus. The upper two-thirds of the radius are wanting.
b. 30. A bullet entered the outer side of the arm at the junction of the lower thirds, severely comminuted the radius and escaped at the olecranon, opening the joint. The extremity of the humerus is carious and partly absorbed. The anterior surface of the olecranon is carious and partly absorbed, and on the inner border there is a plate of necrosed bone.

Private T. F., "C," 14th New York Heavy Artillery, 35: Petersburg, 30th June; admitted hospital, Washington, 1st July; died from no assignable cause, 28th July, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

2749. The right humerus and the upper thirds of the bones of the forearm, fifteen and a half months
b. 31. after injury. Fracture of the humerus, immediately above and involving the joint, was followed by inflammation and resulted in anchylosis. New bone has formed to double the volume of the shaft at its lower extremity and extending to the surgical neck. Through a number of cloacæ a very heavy sequestrum, occupying six inches of the shaft, is seen. The head of the bone is spongy and a large part of the articular surface has been destroyed by ulceration. *See figure* 54.

Private B. W., "I," 37th New York, 22: Williamsburg, 5th May, 1862; died with Bright's disease, Philadelphia, 20th August, 1863.

Contributed by Acting Assistant Surgeon C. H. Boardman.

See 4627, **XXVI.** A. 1, 42.

FIG. 54. Enlargement of humerus and anchylosis of elbow after fracture. *Spec.* 2749.

1471. The bones of the right elbow, after fracture of the olecranon and necrosis of the extremity,
b. 32. and rupture of the posterior portion of the orbicular ligament.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

523. The upper portions of the bones of the right forearm. The olecranon has been completely
b. 33. shattered, and its fragments are more or less adherent in fantastic arches, with the usefulness of the articulation destroyed. The ulna is superficially necrosed on its posterior surface at the base of the olecranon.

Contributor and history unknown.

395. The two lower thirds of the right humerus. The entire articular extremity, except a small
b. 34. portion of the inner condyle, has been carried away, but an evident attempt has been made to save the limb, as is to be seen by its carious condition.

Contributed by Surgeon A. B. Hasson, U. S. Army.

229. The bones of the left elbow, after fracture of the outer condyle by a round bullet which entered two and a half
b. 35. inches above the joint and passed downward, grazing the humerus and the head of the radius and denuding them of periosteum.

Private M. R., "I," 11th Pennsylvania, 26: Second Bull Run, 29th August; admitted hospital, Philadelphia, 4th September; gangrene appeared, 20th; died, 21st September, 1862.

Contributed by Acting Assistant Surgeon J. B. Bowen.

For other illustrations, see 3569, **VI.** A. B. b. 16.

c. Caries Consecutive upon other Injury than Fracture of the Bones of the Joint.

1032. A wet preparation, showing the condition of the right elbow seven weeks after comminution of the humerus by
c. 1. a musket ball one and a half inches above the joint. The inflammation extended to the shoulder and below the elbow, and the synovial membrane was destroyed by ulceration.

Corporal W. H. L., "F," 12th Illinois: Corinth, Miss., 3d October: admitted hospital, Paducah, Ky., 17th October; amputated in the middle third, 17th November, 1862; discharged the service, 2d January, 1863.

Contributed by Surgeon H. P. Stearns, U. S. Vols.

159. The bones of the left elbow, exhibiting a carious condition of the articular extremities. There appears to have
c. 2. been no fracture, and the situation has probably followed a flesh wound.

Contributor and history unknown.

2017. The bones of the left forearm, showing a necrosed condition of the middle third of the radius and erosion of the
c. 3. articular surfaces in the elbow after pyæmia following a flesh wound (and probably contusion of the ulna) of the forearm.

Private C. McF., "B," 40th Ohio: Lookout Mountain, 24th November; died from pyæmia, 27th December, 1863.

Contributed by Surgeon Benjamin Woodward, 22d Illinois.

See class **VIII.** A. B. a.

2782. The lowest third of the right humerus, with the two upper thirds of the bones of the forearm. The ulna was
c. 4. contused by a buckshot two inches below the articulation; inflammation and sloughing involved the elbow; the shaft of the ulna is necrosed nearly the whole extent of the specimen, and the entire articular surfaces are carious.

Corporal J. H., "H," 68th Pennsylvania, 21: Gettysburg, 3d July; admitted hospital, Philadelphia, 21st; sloughing commenced, 23d July; hæmorrhage, 13th and 14th August; pyæmia appeared, 7th September; died, 14th September, 1863.

Contributed by Acting Assistant Surgeon W. C. Dixon.

3782. The lower two-thirds of the right humerus and upper portions of the bones of the forearm. There is no osseous
c. 5. fracture, but the entire articular surface is carious, and a moderate periosteal disturbance may be traced over the greater portion of the specimen. On the anterior surface of the shaft, high up, a small region of necrosis is to be seen, the possible result of contusion, and it may be the disease to the joint was consequent therefrom.

Contributor and history unknown.

d. Excisions.

2385. Two excised fragments of the olecranon.
d. 1. Received after the Wilderness.

1214. Fragments representing the greater portion of the right olecranon, excised for fracture by a buckshot, which is
d. 2. attached, flattened.

Corporal W. B., "H," 68th Pennsylvania, 21: Chancellorsville, 3d May; admitted hospital, Washington, 9th; excised and buckshot removed, 13th May, 1863. Recovered with partial anchylosis.

Contributed by Surgeon O. A. Judson, U. S. Vols.

See **XXVII.** B. B. d.

70. The internal condyle of the right humerus, excised after gunshot.
d. 3. Unknown: Second Bull Run, 30th August; excised by Surgeon T. E. Mitchell, 1st Maryland, Washington, 16th September, 1862.

Contributed by the operator.

4102. The extremity of the right ulna, excised just below the coronoid process.
d. 4. Private J. W. M., "H," 17th Maine: Burksville, Va., 6th April; excised by Surgeon B. A. Vanderkieft, U. S. Vols., Annapolis, 20th April; died of pyæmia, 27th May, 1865.

Contributed by the operator.

639. The head of the radius and outer condyle, fractured and excised from the right elbow.
d. 5. Private C. H., "C," 123d Pennsylvania: Fredericksburg, 13th December; excised, Washington, 29th December, 1862. Recovered.

Contributed by Surgeon O. A. Judson, U. S. Vols.

884. The head and one inch of the shaft of the radius excised, and a portion of the fractured olecranon removed from
d. 6. the right elbow. A partial fracture exists in the head of the radius.

Private S. S., "B," 59th New York: Antietam, 17th September; admitted hospital, Philadelphia, 28th September; excised by Assistant Surgeon E. de W. Breneman, U. S. Army, 6th October; discharged the service, 22d December, 1862.

Contributed by the operator.

1005. The head of the radius and the articular extremity of the humerus, excised from the right elbow.
d. 7. Contributed by Acting Assistant Surgeon G. F. Shrady.

3949. The head of the radius. the ulna sawn at the coronoid process, and two-thirds of an inch of the
d. 8. lower extremity of the humerus, excised from the right elbow for a fracture of the olecranon and inner condyle. *See figure* 55.

FIG. 55. Rear view of excised right elbow. *Spec.* 3949

Private W. S. D., "G," 60th Georgia, (Rebel,) 18: Monocacy Junction, 9th July; excised by Surgeon Graves, Rebel Army; admitted hospital, Frederick, 10th July, 1864. Recovered with almost perfect use of the limb.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

See 3238, **XXV.** A. B. a. 6.

2600. The head of the radius and the coronoid process and one inch of the shaft of the ulna from the right elbow,
d. 9. excised after destruction of the olecranon

Sergeant T. K., "F," 2d New York: Gettysburg, 3d July; excised by Acting Assistant Surgeon J. H. McClellan, Philadelphia, 29th July, 1863. Recovered.

Contributed by the operator.

181. The head and one-half inch of the shaft of the radius and a portion of the external condyle, excised.
d. 10. Private J. M., "A," 1st Battalion, 12th U. S. Infantry: Second Bull Run, 29th August; excised, Washington, 7th September, 1862.
Contributed by Acting Assistant Surgeon A. G. Reed.

1870. The bones of the right forearm, except the upper extremities, supposed to be from the same case as 1873, **VII.**
d. 11. A. B. d. 31.
Received, without history, through Acting Assistant Surgeon Joseph Leidy.

72. The articular extremity of the right humerus, sawn just above the condyles and excised for fracture of the external
d. 12. condyle.
Private J. L. M., "C," 67th Pennsylvania, 40: Petersburg, 25th March; admitted hospital, Washington, 2d April; excised, 5th April, 1865. Recovered.
Contributed by Assistant Surgeon H. Allen, U. S. Army.

2147. Four fragments of diseased bone, representing the olecranon and part of the coronoid process of the left ulna.
d. 13. Corporal M. M. B., "F," 17th Illinois: Chickamauga, 20th September; excised by Surgeon I. Moses, U. S. Vols., October; died, 12th December, 1863.
Contributed by the operator.

842. The condyles of the humerus and the olecranon and coronoid processes, excised from right elbow after fracture
d. 14. of the inner condyle and olecranon. The excised parts are carious and the line of section in the ulna is exceedingly oblique.
Private E., Pennsylvania Reserve Corps: Antietam, 17th September; excised by Assistant Surgeon J. H. Bill, U. S. Army, Frederick, 29th October, 1862. Recovered with a serviceable limb.
Contributed by the operator.

102. The upper portion of the ulna, excised through the coronoid process, and the articular portion of the humerus
d. 15. fractured along the epiphyseal line and through its radial head, removed from the left elbow.
Private R. S., "B," 105th Pennsylvania, 38: Amelia Springs, Va., 6th April; admitted hospital, Annapolis, 15th; excised by Surgeon B. A. Vanderkieft, U. S. Vols., 26th April, 1865.
Contributed by the operator.

3602. Seven fragments of carious bone, representing the condyles of the humerus, the olecranon and head of the radius,
d. 16. excised from the right elbow.
Private J. M. T., "E," 2d United States Sharpshooters, (Volunteers,) 21: Wilderness, 6th May; excised by Surgeon R. B. Bontecou, U. S. Vols., 18th June, 1864. Recovered with an inflexible arm two inches shortened.
Contributed by the operator.

1050. The olecranon and coronoid processes and the articular extremity of the excised
d. 17. humerus just above the condyles, from the right elbow. The articulation is entirely destroyed by suppuration. *See figure* 56.
Private M. R., "A," 38th U. S. Colored Troops, 22: Deep Bottom, Va., 29th September; admitted hospital, Portsmouth, 30th September; excised, 4th November, 1864. Recovered.
Contributed by Assistant Surgeon J. H. Frantz, U. S. Army.

FIG. 56. Anterior view of right elbow excised. *Spec.* 1050.

920. The olecranon and coronoid processes of the ulna, the head of the radius and fragments of the condyles of the
d. 18. humerus, excised from the left elbow.
Contributed by Assistant Surgeon C. Wagner, U. S. Army.

15. The bones of the right elbow, excised. The line of section in the humerus is just above the condyles, in the ulna
d. 19. just below the coronoid process, and in the radius just below the head, only a portion of which is preserved. The outer condyle is shattered.
Private J. C., "A," 62d Pennsylvania: Malvern Hill, 1st July; excised, Washington, 14th; amputated for secondary hæmorrhage, 21st July; discharged the service, 30th August, 1862.

3918. The trochlear portion of the humerus, a longitudinal half of an inch of the superior portion of the radius, and
d. 20. the olecranon and coronoid processes and one inch of the shaft of the ulna, excised from the left elbow. The articular portion of the ulna, and, probably, the missing part of the radius, were shattered by the bullet.
Private J. W. C., "B," 48th Virginia, (Rebel,) 18: Gettysburg, 1st July; admitted hospital, Frederick, 7th; excised by Assistant Surgeon R. F. Weir, U. S. Army, 11th July; gangrene, 20 August—4th September; healed, with motion of the hand over an arc of fourteen inches, 20th December, 1863; escaped, 2d May, 1864.
Contributed by the operator.
See class **XXIII.** A. B.

4287. A section of the head of the radius, the olecranon and one inch of the lower extremity of the humerus, excised
d. 21. from the right elbow. The articular surfaces were destroyed by suppuration. A transverse section has been made in in the specimen just above the trochlea.

Private F. O., "E," 93d Pennsylvania: Petersburg, 25th March; excised by Surgeon G. L. Pancoast, U. S. Vols., Washington, 6th May, 1865. Recovered.

Contributed by the operator.

1751. Fifteen fragments, representing the extremities of all the bones entering the elbow, excised.
d. 22. Contributed by Surgeon I. Moses, U. S. Vols.

1209. The olecranon and two inches of the posterior portion of the shaft of the left ulna, excised for fracture by a
d. 23. conoidal ball.

Private J. H., "E," 12th New Jersey, 22: Chancellorsville, 3d May; admitted hospital, Washington, 8th; excised, 25th May, 1863. Recovered with partial use of joint.

Contributed by Acting Assistant Surgeon J. E. Winants.

3615. The lower extremity of the right humerus, one inch of the radius and one and a half inches of the ulna, excised
d. 24. for fracture of the olecranon. The articular surfaces are all carious. The line of section in the humerus is very oblique.

Corporal P. L., "D," 3d New Hampshire: Lines of Bermuda Hundred, Va., 16th June; admitted hospital, Philadelphia, 21st June; excised by Acting Assistant Surgeon Moon, 12th July; died exhausted, 3d August, 1864

Contributed by Acting Assistant Surgeon J. B. Lapsley.

See 4629, **XXVI.** A. 3, 127.

2588. The head and one-half inch of the shaft of the radius and two and a half inches of the upper extremity of the ulna
d. 25. from the left forearm, excised for a shattered olecranon.

Private Z. W., "F," 63d New York: Cold Harbor, 2d June; admitted hospital, Washington, 8th; excised by Acting Assistant Surgeon R. Westerling, 13th June; discharged the service, 5th July, 1864.

Contributed by the operator.

2501. Two and one-fourth inches of the extremity of the right humerus, excised for fracture of the outer condyle and head
d. 26. of the ulna by a conoidal ball. There are traces of periosteal disturbance on the shaft.

Private T. S., "A," 149th Pennsylvania: Wilderness, 6th May; admitted hospital, Washington, 11th; excised, 20th May, 1864; discharged service, 9th September, 1865.

Contributed by Acting Assistant Surgeon Fred. G. H. Bradford.

327. The lower extremity of the humerus, excised just above the condyles, the head and half
d. 27. an inch of the radius, and the ulna excised just below the coronoid process, removed from the right elbow after fracture of the olecranon. The articular surfaces are carious. *See figure* 57.

Private J. G., "D," 6th New Jersey, 24: Second Bull Run, 29th August, 1862; excised three weeks afterward by Assistant Surgeon B. A. Clements, U. S. Army. Recovered with a useful hand but anchylosed elbow.

Contributed by the operator.

FIG. 57. Posterior view of excised right elbow. *Spec.* 327.

435. The head of the radius, extremity of the ulna and two inches of the extremity of the humerus, excised from the
d. 28. right elbow for direct perforation by a conoidal ball.

Private J. S. W., 5th Maryland: Antietam, 17th September; excised by Surgeon H. S. Hewit, U. S. Vols., Frederick, 2d October; died, 20th October, 1862.

Contributed by the operator.

1864. The lowest two inches of the humerus and the upper extremities of the bones of the forearm, excised from the right
d. 29. elbow. All the articular surfaces are carious, and much of the trochlea has been absorbed. The olecranon has disappeared from the combined effect of fracture and absorption. The radius and ulna are anchylosed. On the anterior surface of the ulna is a large irregular arch composed of fragments and of callus, which have assumed this shape and position apparently from muscular contraction. The addition became separated from the head of the bone in maceration, but is wired to it in the specimen. A plate on the posterior surface of the ulna is necrosed. The line of section in the radius is just below the head, and in the ulna, very obliquely, below the coronoid process.

Received through Acting Assistant Surgeon J. Leidy, without history.

2293. Two and a half inches of the lower extremity of the left humerus, excised for shattering of the outer half.
d. 30. Private J. H. M., "H," 138th Pennsylvania, 25: Wilderness, 7th May admitted hospital, Washington, 11th; excised by Assistant Surgeon H. Allen, U. S. Army, 13th; died of pyæmia, 30th May, 1864.

Contributed by the operator.

1873. The lower extremity of the right humerus, excised at an apparent line of fracture through the olecranon fossa and
d. 31. just above the condyles, the head of the radius excised at the neck, and the extremity of the ulna excised one-half inch below the coronoid process. The ulna and humerus are anchylosed in a flexed position, and a complete fracture which has extended from the line of section through the radial head of the humerus, is consolidated. Supposed to be from the same case as 1870, **VII.** A. B. d. 11.

Received through Acting Assistant Surgeon J. Leidy, without history.

838. One and a half inches of the lower extremity of the humerus, the upper extremity of
d. 32. the ulna from half an inch below the coronoid process and a portion of the head of the radius, excised from the left elbow. A spherical ball had shattered the outer condyle and head of the radius. The articular surfaces are carious. *See figure* 58.

Private F. A. W., 7th Ohio, 26: Winchester, March; admitted hospital, Frederick, 5th April; excised by Assistant Surgeon R. F. Weir, U. S. Army, 16th April; discharged the service with a useful arm, 2d July, 1862.

Contributed by the operator.

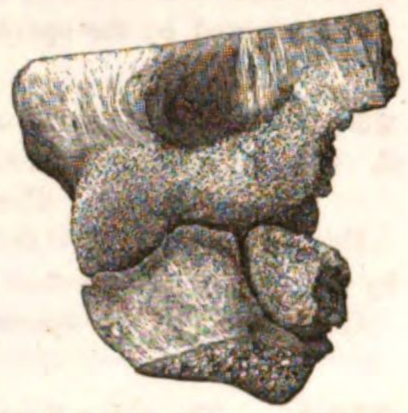

FIG. 58. Front view of excised left elbow. *Spec.* 838.

3918. The olecranon and one and a half inches of the lower extremity of the humerus, excised from the left elbow for
d. 33. fracture of the inner condyle.

Private F. D., "A," 1st Potomac Home Brigade, 18: Winchester, 24th July; admitted hospital, Frederick, 27th; excised by Assistant Surgeon R. F. Weir, U. S. Army, 29th July, 1864; discharged the service, 17th June, 1865.

Contributed by the operator.

2912. Two and a half inches of the lower extremity of the humerus and the olecranon, excised from the left elbow.
d. 34. A thin plate of lead from the missile is mounted with the specimen.

Private J. M., "I," 90th Pennsylvania, 40: Wilderness, 6th May; admitted hospital, Washington, 11th; excised by Assistant Surgeon George A. Mursick, U. S. Vols., 18th May; the wound healed, and the patient did well until 28th July, 1864, when he suddenly died of serous apoplexy.

Contributed by the operator.

See 2913, **VII.** A. B. d. 47.

See class **XXVII.** B. B. d.

4261. Two inches excised from the lower extremity of the right humerus. The inner condyle and border of the shaft
d. 35. immediately superior were shattered.

Private H. M., "H," 9th West Virginia, 19: Winchester, 20th July; admitted hospital, Cumberland, 23d; excised by Surgeon J. B. Lewis, U. S. Vols., 28th July; died of pyæmia, 20th August, 1864.

Contributed by the operator.

2304. Two and three-fourths inches of the upper extremity of the right ulna, excised. The posterior portion of the base
d. 36. of the olecranon is fractured, and an antero-posterior fracture extends through the coronoid and olecranon processes and down the shaft the length of the specimen.

Private E. H., "A," 6th Vermont: Wilderness, 5th May; excised by Acting Assistant Surgeon Armstrong, Washington, 18th May; finally healed, December, 1864; discharged the service, 17th January, 1865.

This man's condition, 11th February, 1867, was as follows: Messenger in Paymaster General's Office; wound entirely healed; the head of the radius plays in the olecranon fossa; extension and flexion almost perfect; pronation impaired; can lift a hundred pounds with the right arm; general health good. His photograph, taken at that time, is in the Museum collection.

Contributed by Surgeon O. A. Judson, U. S. Vols.

3039. The head of the radius and two inches of the extremity of the left humerus, excised for fracture of the outer
d. 37. condyle. The articular portion of the specimen is carious.

Private W. R., "B," 2d Pennsylvania, 19: Petersburg, 17th June; admitted hospital, Washington, 21st June; excised by Surgeon R. B. Bontecou, U. S. Vols., 3d July; amputated in the middle third for secondary hæmorrhage, 13th; died exhausted, 15th July, 1864.

Contributed by the operator.

See class **VII.** A. B. f.

3306. The olecranon and two inches of the lower extremity of the left humerus, excised. The articulating surface
d. 38. of the radius was also removed, but has not been preserved. The outer condyle has been carried away. A thin friable deposit of callus exists near the fracture, and the articular surfaces are carious.

Private W. M. J., "D," 1st Michigan Sharpshooters, 17: Wilderness, 6th May; admitted hospital near Alexandria, 16th; excised by Surgeon D. P. Smith, U. S. Vols., 26th May; died, 3d June, 1864.

Contributed by the operator.

3606. The olecranon and two inches from the lower extremity of the left humerus, excised. A bullet has passed
d. 39. directly through the humerus, irregularly breaking it at the extremity of the shaft and completely fracturing it through the trochlea. No pathological change has occurred in the specimen.

Private J. W. S., "M," 7th Indiana Cavalry: near Memphis, 22d October; excised by Assistant Surgeon J. M. Study, U. S. Vols., 31st October, 1864; discharged the service, 14th May, 1865.

Contributed by the operator.

2582. The head and one inch of the shaft of the radius, the tip of the olecranon and two inches of the lower extremity
d. 40. of the humerus, excised. The ball entered on the anterior aspect and passed directly through the superior portion of the ulna. The articular surfaces are completely destroyed by ulceration.

Private C. Z., "M," 7th New York Heavy Artillery: Cold Harbor, 3d June; admitted hospital, Washington, 8th; excised by Surgeon G. L. Pancoast, U. S. Vols., 16th; died from hæmorrhage, 25th June, 1864.

Contributed by the operator.

2502. The upper three inches of the shafts of the bones of the right forearm after shattering of the olecranon.
d. 41. Private J. B., "G," 2d Vermont: Wilderness, 5th May; admitted hospital, Washington, 11th; excised, 25th May, 1864. Discharged by expiration of term of service.

Contributed by Acting Assistant Surgeon Fred. G. H. Bradford.

458. Two inches of the lower extremity of the right humerus and the olecranon, excised
d. 42. after fracture from direct perforation of the elbow by a conoidal ball. *See figure* 59.

Private P. D., "D," 69th New York: Antietam, 17th September; excised by Surgeon H. S. Hewit, U. S. Vols., Frederick, 2d October; amputated near the shoulder, 4th December, 1862. Recovered.

Contributed by the operator.

See 807, **VII.** A. B. f. 96.

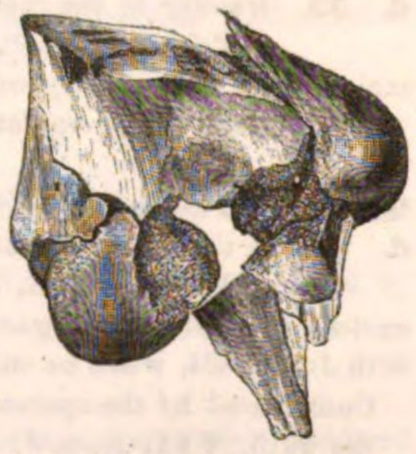

FIG. 59. Front view of excised left elbow. *Spec.* 458.

594. The lowest two and a half inches of the left humerus, perforated just above the
d. 43. condyles, and the extremity of the olecranon, apparently excised. The diaphysis of the humerus is comminuted and a complete fracture extends through the trochlea. The olecranon also is fractured.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

337. The superior three inches of the left ulna, much shattered, partly necrosed and apparently excised.
d. 44. Contributed by Surgeon W. Varian, U. S. Vols.

343. Two inches of the extremity of the left humerus, and the ulna excised just below the coronoid process. The
d. 45. olecranon is fractured, and a vertical fracture in the humerus extends through the middle of the trochlea. The articular surface is partly eroded.

Private A. McA., "F," 23d Ohio: Antietam, 17th September; admitted hospital, Washington, 20th September; excised by Assistant Surgeon C. A. McCall, U. S. Army, 2d October, 1862. Recovered.

Contributed by the operator.

3466. Two and a half inches of the lower extremity of the left humerus, one inch of the radius and two inches of the
d. 46. ulna, including the olecranon, excised. The outer condyle and head of the radius had been fractured and were removed. The articular surfaces are destroyed by suppuration. The lines of section in the shafts of the bones of the forearm are very oblique. In the specimen the olecranon has been divided.

Private A. N. P., "K," 2d Connecticut Heavy Artillery: Cold Harbor, 1st June; admitted hospital and bullet removed from joint, Baltimore, 20th June; excised, 16th July; died from pleuro-pneumonia, 30th August, 1864.

Contributed by Acting Assistant Surgeon G. W. Fay.

See 4629, **XXVI.** A. 3, 127.

2913. A wet preparation of the left elbow, ten weeks after excision of two and a half inches from the extremity of the
d. 47. humerus and the olecranon. Ligamentous union, with free motion, exists between the end of the humerus and the bones of the forearm. The extremity of the humerus is rounded off and enlarged by new bone, and the medullary canal is decreased by osseous deposit for several inches.

Private J. M., "I," 90th Pennsylvania, 40: Wilderness, 6th May; admitted hospital, Washington, 11th; excised by Assistant Surgeon Geo. A. Mursick, U. S. Vols., 18th May; did very well until 28th July, 1864, when death from serous apoplexy occurred.

Contributed by the operator.

See 2912, **VII.** A. B. d. 34.

942. A wet preparation, showing the condition of the left elbow two months after excision of the lower extremity of
d. 48. the humerus. The olecranon, which appears to have been obliquely fractured from the shaft, has become firmly united on a level with the head of the radius, and the extremities of both bones of the forearm are in good condition. Three inches of the humerus are necrosed with the formation of lines of demarcation. Amputation was performed at the junction of the lower thirds.

Contributed by Surgeon D. P. Smith, U. S. Vols.

See class **VII.** A. B. f.

3042. Two and a half inches of the extremity of the left humerus, the head of the radius and the coronoid and olecranon
d. 49. processes of the ulna, excised for disorganization of the elbow following gunshot. The tips of the olecranon and outer condyle were fractured by a ball passing transversely, and subsequent ulceration destroyed the articular surfaces.

Corporal J. J. J., "K," 48th New York, 26: Cold Harbor, 3d June; admitted hospital, Washington, 7th; excised by Surgeon R. B. Bontecou, U. S. Vols., 22d; amputated in the upper third for sloughing, 27th; died exhausted, 29th June, 1864.

Contributed by the operator.

See class **VII.** A. B. f.

4289. The lower extremity and one inch of the shaft of the humerus in many fragments, excised for complete shattering
d. 50. by a conoidal ball. The olecranon also was removed, but is not preserved.

Private J. W., "I," 15th New York Heavy Artillery: Hatcher's Run, 31st March; excised by Surgeon G. L. Pancoast, U. S. Vols., Washington, 22d April, 1865. Recovered.

Contributed by the operator.

925. One-fourth inch of the articular extremity of the humerus, nearly two inches of the radius and the ulna divided
d. 51. just below the coronoid process, excised from the left elbow. The head of the radius is shattered, and portions of the coronoid and inner aspect of the olecranon processes and trochlea are broken off. The specimen is disorganized by caries.

Private J. D., 63d Pennsylvania: Fredericksburg, 13th December; admitted hospital, Point Lookout, Md., 16th December, 1862; excised by Assistant Surgeon W. H. Gardner, U. S. Army, 12th January, 1863.

Contributed by Assistant Surgeon C. Wagner, U. S. Army.

2465. Nearly two inches from the lower extremity of the humerus, the head of the radius and the upper portion of
d. 52. the ulna cut half an inch below the coronoid process, excised from the left elbow. The olecranon is fractured by the direct impingement of a missile from the rear, and the articular surfaces are eroded.

Private G. T., "E," 15th New Jersey, 21: Wilderness, 5th May; admitted hospital, Washington, 11th; excised by Surgeon G. L. Pancoast, U. S. Vols., 7th June, 1864; discharged the service, 22d February, 1865.

Contributed by the operator.

194. The lower two inches of the humerus and the extremities of the bones of the forearm, excised from the right
d. 53. elbow on a level with and including the head of the radius. A portion of the trochlea is carried away and the articular surface is carious.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

2483. One and a half inches of the lower extremity of the humerus and half an inch of each of the bones of the fore-
d. 54. arm, excised from the right elbow. The olecranon and a small fragment of the trochlea were torn off by a conoidal ball. The articular surfaces are carious.

Corporal D. J. D., "E," 2d United States Sharpshooters (Volunteers): Wilderness, 6th May; admitted hospital, Washington, 28th May; excised by Acting Assistant Surgeon R. Westerling, 3d June; died from secondary hæmorrhage, 22d June, 1864.

Contributed by Surgeon G. L. Pancoast, U. S. Vols.

2141. Two and a half inches of the lower extremity of the right humerus, excised for complete fracture of the shaft
d. 55. just above the condyles. The borders of the fracture are necrosed.

Private H. B. R., "E," 14th Ohio: Chickamauga, 20th September; excised by Surgeon I. Moses, U. S. Vols., Chattanooga, 10th October, 1863.

Contributed by the operator.

1365. The olecranon and two and a half inches of the lower extremity of the humerus, excised from the right elbow.
d. 56. The outer condyle and adjacent part of the humerus are wanting, and the articular surface is carious.

Private W. D., "C," 36th U. S. Colored Troops, 20: Deep Bottom, Va., 29th September; admitted hospital, Portsmouth, 5th October; excised, 3d November, 1864. Recovered.

Contributed by Assistant Surgeon J. H. Frantz, U. S. Army.

351. Three inches from the lower extremity of the right humerus, excised. An oblique fracture extends from the
d. 57. point of impact of a bullet, an inch above the outer condyle, to the inner condyle, which is split off. The lower portion of the shaft is superficially necrosed.

Private E. O'N., "D," 10th Ohio: Perryville, 8th October; admitted hospital, New Albany, Ind., 14th; excised by Acting Assistant Surgeon J. Sloan; the wound was doing well at the time of desertion, 30th October, 1862.

Contributed by the operator.

885. Two and a half inches of the upper extremity of the left radius, excised. The bone is necrosed on the outer
d. 58. surface on a level with the tuberosity, as though the result of a gunshot contusion. Two deep fissures, uniting at their inferior extremities, form a partial fracture of the shaft.

Case of a Wisconsin soldier, wounded at Antietam, and successfully excised by Assistant Surgeon E. de W. Breneman, U. S. Army, Philadelphia, October, 1862.

Contributed by the operator.

3912. The upper half of the olecranon and three inches of the lower extremity of the
d. 59. humerus, excised from the right elbow. The shaft has been struck just above the inner condyle, producing a complete fracture through the trochlea. A space at the point of impact about the calibre of the bullet is necrosed. beyond which some periosteal inflammation has occurred. *See figure* 60.

Private J. H., 2d North Carolina, (Rebel,) 40: Gettysburg, 3d July; admitted hospital, Frederick, 6th; excised by Assistant Surgeon R. F. Weir, U. S. Army, 29th July, 1863; transferred to Baltimore, 5th May, 1864.

Contributed by the operator.

See 2570, **XXV.** A. B. a. 8.

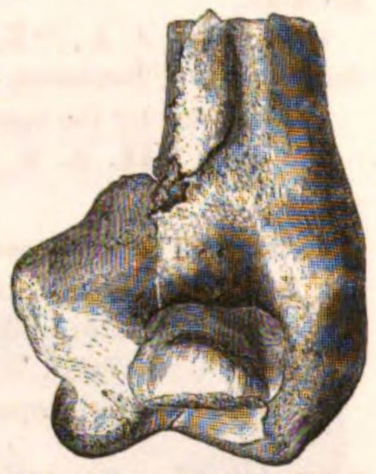

FIG. 60. Rear view of tip of olecranon and three inches of humerus, excised. *Spec* 3912

2478. Three inches of the lower extremity of the left humerus, excised. The specimen
d. 60. shows a complete oblique fracture in the lowest portion of the shaft, complicated with a perpendicular one downward directly through the trochlea, of which the central portion is missing. On the posterior upper border of the transverse fracture is a moderate collection of callus. The olecranon was fractured, but is not preserved in the specimen. *See figure* 61.

Private J. P., "C," 39th New York: Wilderness, 5th May; admitted hospital, Washington, 13th: excised by Surgeon G. L. Pancoast, U. S. Vols., 25th May, 1864; discharged the service, 7th November, 1865.

Contributed by the operator.

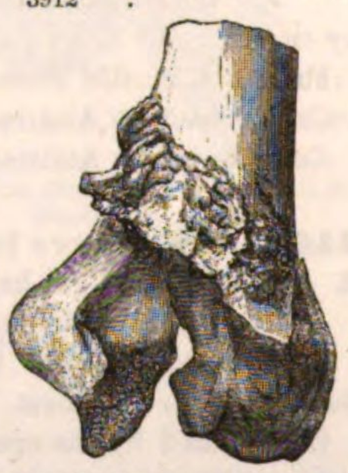

FIG. 61. Rear view of three inches of left humerus, ex cised. *Spec.* 2478.

1178. Three inches of the lower extremity of the left humerus and the coronoid and olecra-
d. 61. non processes, excised. A fracture in the trochlea runs two inches up the shaft. A section through the olecranon implies it was removed in the operation.

Private J. T., "C," 10th Massachusetts, 22: Second Fredericksburg, 3d May; admitted hospital, Washington, 8th; excised by Assistant Surgeon C. A. McCall, U. S. Army, 18th May; died, 27th May, 1863.

Contributed by Acting Medical Cadet J. Winston.

1309. Three inches of the lower extremity of the right humerus and the upper extremities of the radius and ulna,
d. 62. excised. The humerus was perforated just above the outer condyle and shattered.

Private J. S., "C," 165th New York, 40: Port Hudson, La., 27th May; admitted hospital, New Orleans, 29th May; excised, 9th June, 1863.

Contributed by Assistant Surgeon P. S. Conner, U. S. Army.

3026. Two and a half inches from the lower extremity of the right humerus, excised. One inch of the upper extremity
d. 63. of the ulna and a small portion of the head of the radius were removed at the same time, but have not been preserved. Two incomplete longitudinal fractures, one on each surface of the shaft, arise from the lower border. The trochlea is destroyed, the outer condyle shattered and the inner condyle separated by an oblique fracture. Superficial necrosis exists over much of the specimen, the remainder showing reparative periosteal disturbance.

Private W. D. R., "D," 81st New York, 21: accidentally wounded, Brandy Station, Va., 26th November; admitted hospital, Alexandria, the same day; excised by Surgeon Charles Page, U. S. Army, 19th December, 1864. Recovered. Reënlisted in Company "K," 5th Regiment, 1st Army Corps.

Contributed by Acting Assistant Surgeon C. W. Kœchling.

2023. Three inches of the lower extremity of the right humerus and the bones of the forearm, excised through the
d. 64. coronoid process and head of the radius for a fracture of the shaft of the humerus from a ball passing transversely above the condyles.

Private J. T. H., "K," 47th Pennsylvania: Pocotaligo, S. C., 22d October; admitted hospital, Beaufort, S. C., 24th; excised by Surgeon R. B. Bontecou, U. S. Vols., 26th October; transferred North, 28th December, 1862; "had good motion of the elbow," July, 1863.

Contributed by the operator.

4249. d. 65. The tip of the olecranon and three inches of the lower extremity of the humerus, successfully excised from the left elbow. The shaft was shattered above the condyles, and a complete fracture extends through the trochlea.

Corporal R. B. N., "I," Scott's 900 (New York Cavalry).

Contributed by Dr. N. D. Benedict.

2583. d. 66. The head and one inch of the shaft of the radius, six fragments representing two inches of the extremity of the humerus, and the upper part of the ulna, excised. The specimen has slight periosteal deposits of callus upon it and is more or less carious.

Private A. R. D., "F," 102d Pennsylvania: Wilderness, 5th May; admitted hospital, Washington, 11th May; excised by Surgeon G. L. Pancoast, U. S. Vols., 17th June; died, 21st August, 1864.

Contributed by the operator.

2578. d. 67. Three inches of the lower extremity of the right humerus, excised. The bullet passed through the olecranon and near the inner condyle. A nearly longitudinal fracture extends up the specimen, which is superficially necrosed.

Private M. S., "C," 69th Pennsylvania: Gettysburg, 3d July; excised by Assistant Surgeon C. R. Greenleaf, U. S. Army, Philadelphia, 21st July, 1864. Recovered.

Contributed by the operator.

749. d. 68. The olecranon and coronoid processes and two and a half inches of the shaft of the left ulna, and the head and one inch of the shaft of the radius, excised. The shaft of the ulna is completely comminuted, and that of the radius has several partial fractures.

Private J. H., "K," 19th Indiana, 21: Antietam, 17th September; admitted hospital, Frederick, 18th; excised by Acting Assistant Surgeon J. H. Bartholf, 28th September, 1862. Recovered with two inches shortening.

Contributed by the operator.

341. d. 69. The greater part of the head and the outer half of two inches of the shaft of the right radius, and the entire articular surface and two and a half inches of the shaft of the ulna. The ulna, particularly in the articulation, is badly shattered, and the inner half of the radial specimen has been carried away by a conoidal ball which entered three inches below the olecranon and passed out near the inner condyle.

Private B. R. B., "F," 80th Indiana: Perryville, Ky, 8th October; admitted hospital, New Albany, Ind., 24th October, 1862; excised by Acting Assistant Surgeon J Sloan. Recovered.

Contributed by Surgeon W. Varian, U. S. Vols.

2593. d. 70. The head of the radius, the olecranon and coronoid processes, and one inch of the shaft of the ulna and two inches of the extremity of the humerus, excised from the left elbow ten weeks after injury. The inner condyle and olecranon were shattered, and caries has changed all the structures, which are now partially absorbed.

Private R. B., "A," 116th Pennsylvania: Chancellorsville, 3d May, 1863; excised by Acting Assistant Surgeon McLean, Philadelphia. Recovered.

Contributed by the operator.

1995. d. 71. Three and a half inches of the lower extremity of the right humerus, excised after the passage of a conoidal ball between the condyles. The extremity is carious, but the outer condyle, which was split off, has imperfectly united to the shaft. The specimen is sawn through one and a half inches below the point of final excision.

Sergeant M. S., "E," 16th Maine, 25: Gettysburg, 1st July; admitted hospital, Baltimore, 4th September; excised by Acting Assistant Surgeon F. Hinkle, 29th October, 1863. Recovered.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

202. d. 72. Two and a half inches of the lower extremity of the humerus and the ulna divided one inch below the coronoid process, apparently excised from the right elbow. The olecranon is badly fractured, a part of the trochlea is broken, and the articular surface is eroded.

Contributed by Surgeon J. C. Dorr, U. S. Vols.

3713. d. 73. The coronoid and olecranon processes and two and a half inches of the shaft of the left ulna, excised after gangrene attacked a flesh wound of the forearm. The specimen appears to have been slightly contused about midway on the posterior surface. There has been a slight osseous deposit on the posterior portion of the bone. The tip of the olecranon is carious.

Corporal W. R. C., "H," 4th Rhode Island, 23: Poplar Springs, Va., 30th September; specimen excised, Beverly, N. J., 13th December, 1864; discharged the service, 7th June, 1865.

Contributed by Assistant Surgeon C. Wagner, U. S. Army.

3298. The bones of the right elbow, from which the olecranon and part of the coronoid process, the upper three inches
d. 74. of the radius and the condyles of the humerus have been excised by an oblique section.

Private J. H., "F," 112th New York, 21: Cold Harbor, 1st June; excised by Surgeon D. P. Smith, U. S. Vols., 9th June; discharged the service, 18th November, 1864.

Contributed by the operator.

3803. Four inches of the lower extremity of the right humerus, excised for intense inflammation of the joint following
d. 75. fracture of the outer condyle. The periosteum was undisturbed in the operation, and the patient recovered with an exceedingly useful arm.

Captain W. S., "G," 7th U. S. Colored Troops: Deep Bottom, Va., 27th September; admitted hospital, Fort Monroe, 1st October; excised by Surgeon D. G. Rush, 101st Pennsylvania, 23d October, 1864.

Contributed by the operator.

1929. Four inches from the lower extremity of the humerus with the coronoid and olecranon processes of the right ulna,
d. 76. excised. The humerus was split into two nearly equal parts and the articulation entirely destroyed. Slight coatings of callus exist on the shaft.

Corporal J. R. R., "F," 65th Ohio: Chickamauga, 19th September; admitted hospital, Nashville, 11th; excised by Acting Assistant Surgeon W. H. Matlock, 12th November, 1863; discharged the service, 7th June, 1864.

Contributed by the operator.

1750. The olecranon and twenty-one fragments of necrosed bone, representing one-third of the shaft of the left ulna,
d. 77. excised.

Private D. L., "D," 72d Indiana: admitted hospital, Murfreesboro', Tenn., 27th June; excised by Surgeon I. Moses, U. S. Vols., 28th June; amputated in the lowest third of the humerus for gangrene, 30th October, 1863. Recovered.

Contributed by the operator.

See 2129, **VII.** A. B. f. 34.

See class **XXIII.** A. B.

2811. The upper halves of the bones of the right forearm and a portion of the shaft of the humerus. The lowest fourth
d. 78. of the humerus has been excised, and probably secondary amputation performed in the middle third. The extremities of the radius and ulna are carious. The sawn extremity of the humerus is carious, with two small nearly separated exfoliations. Periosteal disturbance has implicated nearly the entire specimen.

Contributor and history unknown.

See class **VII.** A. B. f.

814. Five inches of the lower extremity of the right humerus, excised for shattering of the outer condyle and longitudinal
d. 79. fracture of the shaft.

Private W. F., 132d Pennsylvania: Antietam, 17th September; excised by Surgeon Gabriel Grant, U. S. Vols., 27th September, 1862.

Contributed by the operator.

1308. The head and five inches of the shaft of the radius, excised for comminution of the bone for several inches below
d. 80. the articulation.

Corporal H. H. C., "D," 26th Maine, 31: Irish Bend, La., 4th April; admitted hospital, New Orleans, 17th; excised, 20th April; died, 3d August, 1863.

Contributed by Assistant Surgeon P. S. Conner, U. S. Army.

663. All the articular surfaces of the right elbow, excised for a fracture of the olecranon and outer condyle by a missile
d. 81. passing obliquely over the posterior surface of the joint.

Contributor and history unknown.

3494. The left radius, lower half of the ulna and lower extremity of the humerus, after excision of the upper half of the
d. 82. ulna. The humeral articular surface, the upper portion of the radius and the extremity of the ulna, are carious.

Contributed from Nashville by Surgeon Robert Wm. Pounds.

2278. Six inches of the right ulna and four inches of the radius, much comminuted in their upper halves and excised.
d. 83. Private C. W., "G," 4th New York Heavy Artillery: admitted hospital, Washington, 22d June; excised, 24th June; died of pyæmia, 19th July, 1864.

Contributed by Surgeon O. A. Judson, U. S. Vols.

3271. The left humerus, after excision of the outer condyle. The entire volume of the lowest fourth has been absorbed,
d. 84. and the carious action has destroyed the anterior half of the shaft to the junction of the upper thirds. A sequestrum of six inches represents the extent of the destruction.

Private T. G., "H," 51st New York, 41: Wilderness, 6th May; admitted hospital, Washington, 24th; excised, 26th May; died from pyæmia, 18th September, 1864.

Contributed by Surgeon O. A. Judson, U. S. Vols.

734. d. 85. The left elbow joint excised. The inner condyle was fractured into several fragments and displaced, becoming firmly anchylosed with the olecranon.

Private B. T., "D," 20th New York: Second Bull Run, 30th August, 1862; admitted hospital, Washington, 5th January; excised by Surgeon I. Moses, U. S. Vols., 22d January; discharged, 4th June, 1863.

Contributed by the operator.

998. d. 86. The left elbow, excised. The olecranon was fractured on its inner posterior surface; the joint is carious; a little indifferent callus is near the inner condyle; the humerus was sawn an inch and a half above the joint and the ulna at the base of the coronoid process.

Private M. L., 133d Pennsylvania, 19: Fredericksburg, 13th December; admitted hospital, Point Lookout, Md., 16th; bullet removed from over the head of the radius, 25th December, 1862; excised by Acting Assistant Surgeon T. H. Allison, 15th January, 1863. Recovered with nearly perfect extension and half pronation and supination.

Contributed by Assistant Surgeon C. Wagner, U. S. Army.

For other illustrations, see 2889, **VII.** A. B. f. 91; 2208, **VII.** A. B. f. 108; 4628, **XXVI.** A. 2, 54; 608, **XXII.** A. B. a. 4.

f. Amputations in the Humerus.

1707. f. 1. The lower extremity of the right humerus, amputated in the lowest third for gangrene following fracture of the outer condyle by shell.

Private W. H., "D," 130th Illinois, 24: Vicksburg, 25th June; admitted hospital, Memphis, 11th July; amputated by Acting Assistant Surgeon James Thompson, 12th July, 1863.

Contributed by Surgeon J. G. Keenon, U. S. Vols.

3992. f. 2. The lowest fourth of the right humerus, apparently amputated after fracture over the outer condyle by a bullet directly from the front. An oblique fissure extends to the inner condyle.

The specimen is interesting in showing the cartilaginous junction of the inner condyle.

Received from the Ninth Corps Hospital.

2646. f. 3. The upper portions of the bones of the right forearm and the extremity of the humerus, as if amputated in the lowest fourth. The radius and ulna are completely shattered for four inches from the elbow, as if by a bullet passing obliquely through their shafts.

Contributor and history unknown.

786. f. 4. The bones of the left elbow, after amputation in the lowest third of the humerus. A bullet passed through the joint destroying the outer condyle and trochlear surface. The articular surfaces were destroyed by caries.

Private W. W. H., "D," 16th New York, 23: South Mountain, 14th September; admitted hospital, Brockettsville, Md., 1st October; amputated, 15th November, 1862. Died two hours after the operation.

Contributed by Surgeon Henry James, 3d Vermont.

3404. f. 5. The upper halves of the bones of the left forearm and lowest fourth of the humerus, apparently amputated. The humerus has been gouged out to the diameter of a bullet just above the outer condyle, and that epiphysis was carried away. The articular surfaces are carious.

Contributed from Chattanooga by Assistant Surgeon C. C. Byrne, U. S Army.

909. f. 6. The bones of the right elbow, as if after amputation. The outer portion of the head of the humerus is carried away and a partial fracture extends down the shaft. The outer condyle is shattered and missing, and the articulation is eroded by ulceration.

Contributed by Acting Assistant Surgeon J. Leidy.

3481. f. 7. The bones of the right elbow, after fracture of the inner condyle and splitting off of the olecranon. Apparently a good case for primary excision.

Corporal J. L. A., "H," 6th Iowa: Kenesaw Mountain, Ga., 27th June; admitted Fifteenth Corps Hospital, 1st July; amputated by Surgeon A. Goslin, 48th Illinois, for secondary hæmorrhage, 2d; discharged the hospital, doing well, 27th July, 1864.

Contributed by the operator.

651. f. 8. The bones of the right forearm and lowest fourth of the humerus. A conoidal ball shattered the ulna at the upper extremity of the shaft and destroyed the olecranon. A thin layer of callus has been deposited near the fracture. The articular surfaces are eroded.

Private C. B., "E," 4th U. S. Artillery: Fredericksburg, 13th December; admitted hospital, Georgetown, 28th December, 1862; amputated, 12th January; discharged, 17th February, 1863.

Contributed by Acting Assistant Surgeon R. Ottman.

780. The lower portion of the left humerus with the greater portions of the bones of the forearm The outer condyle
f. 9. is fractured and the upper extremity of the ulna shattered.

Private A. D. B., "A," 1st Rifles, Pennsylvania Reserves, 20: South Mountain, 14th September; admitted hospital, Frederick, 18th; attacked with erysipelas, 22d September; amputated by Acting Assistant Surgeon W. W. Keen, jr., 17th October; discharged the service, 27th November, 1862.

Contributed by the operator.

See class **XXIII.** A. a.

775. The bones of the left elbow, after amputation in the lowest third of the humerus. The head of the radius was
f. 10. carried away by a bullet which entered from behind and passed out near the middle of the forearm, comminuting the ulna for two inches. The outer condyle is fractured and the articular surface of the humerus is carious. Several of the fragments of the ulna are united to each other, but not to the shaft.

Private C. G., "D," 16th New York, 21: South Mountain, 14th September; admitted hospital, Brockettsville, Md., 1st October; amputated, 14th November; transferred to Frederick, 18th November, 1862.

Contributed by Surgeon Henry James, 3d Vermont.

3418. The bones of the left elbow, amputated in the lowest third of the humerus after fracture of the external condyle
f. 11. and head of the radius. The head of the radius is nearly entirely destroyed. An oblique fracture extends through the tuberosity, above which the bone is almost entirely necrosed. The fracture, however, is partially united.

Sergeant D. A. B, "C," 6th New York Cavalry, 24: Front Royal, Va., 9th August; admitted hospital, Baltimore, 21st August; amputated by Acting Assistant Surgeon John Neff, 9th October; discharged the service, 7th December, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

3082. The bones of the right elbow. The outer condyle has been chipped and the head of the radius partly carried
f. 12. away, and a series of longitudinal fractures extend two and a half inches down the shaft. Amputation was probably performed.

Received from the Army of the Potomac.

3651. The bones of the right elbow, after an excision of the upper three inches of the ulna. A partially detached
f. 13. sequestrum exists in the upper extremity of the ulna, around which is a very slight involucrum. Some spongy bone has been thrown out at the radial tuberosity. The articular surface of the radius is eroded and the extremity of the humerus is carious.

Private J. K., "K," 170th New York, 32: Flussell's Mills, Va., 16th August; excised on the field; admitted hospital, Philadelphia, 20th August; amputated in the lowest third for secondary hæmorrhage by Acting Assistant Surgeon A. A. Smith, 9th September: died from pyæmia, 24th September, 1864.

Contributed by the operator.

See class **VII.** A. a. c.

2356. The bones of the right elbow, after amputation in the lowest third of the humerus. A conoidal ball shattered
f. 14. the anterior face of the upper third of the ulna and fractured the tubercle of the radius. A fissure of two inches exists on the outer border of the radius.

Private N. B. H., "D," 3d Vermont: Wilderness, 5th May; admitted hospital, Washington, 24th; amputated by Acting Assistant Surgeon Casey, 21st May, 1864.

Contributed by Acting Assistant Surgeon E. L. Bliss.

2092. The bones of the right elbow, after amputation in the lowest third of the humerus. A bullet passed antero-
f. 15. posteriorly between the bones of the forearm, opening the joint and gouging the ulna below the coronoid process and transversely fracturing the neck of the radius without comminution.

Private F. J. T., "A," 95th Ohio, 27: admitted hospital, Memphis, 27th May; amputated for secondary hæmorrhage by Acting Assistant Surgeon E. M. Powers, 31st May; died, 27th June, 1864.

Contributed by Acting Assistant Surgeon H. D. Garrison.

2722. The bones of the left elbow. The outer condyle on the posterior border appears to have been partially fractured,
f. 16. and consecutive ulceration has destroyed the articulation. Amputation was performed in the lowest third.

Private A. W., "K," 8th U. S. Colored Troops, 37: Olustee, Fla., 20th February; admitted hospital, Beaufort, S. C., 22d February; amputated by Acting Assistant Surgeon Charles T. Reber, 6th March; died from typhoid pneumonia, 16th March, 1864.

Contributed by Assistant Surgeon E. D. Buckman, U. S. Vols.

4264. The bones of the left elbow, amputated in the lowest third of the humerus after fracture. A conoidal pistol ball
f. 17. entered the forearm two and a half inches below the joint, passed upward, obliquely fractured the outer border, shattered the coronoid process and lodged between the head of the radius and fractured border of the ulna. The head of the radius is carious and partly absorbed, and the articular surface of the humerus is necrosed. The bullet is mounted in the specimen as found on amputation.

Private P. W. H., "A," 10th West Virginia, 22: Cedar Creek, 19th October; admitted hospital, Cumberland, 1st November; amputated by Surgeon J. B. Lewis, U. S. Vols., 8th November; died from pyæmia, 17th December, 1864.
Contributed by the operator.
See class **XXVII.** B. B. d.

4265. f. 18. The bones of the right elbow, after amputation in the lowest third of the humerus. A bullet entered the front of the forearm near the joint, carrying before it a large United States button, both of which were extracted the next day. A splinter the breadth of the bone and two and a half inches in length is wanting. The articular surface is necrosed.

Captain S. C., "H," 91st Ohio, 40: Winchester, 20th July; admitted hospital, Cumberland, 23d July; amputated by Acting Assistant Surgeon C. H. Ohr, 15th August; received leave of absence, 29th August, 1864.
Contributed by Surgeon J. B. Lewis, U. S. Vols.
See class **XXVII.** B′. B′.

3383. f. 19. The bones of the left arm, after amputation in the lowest third of the humerus. The outer condyle is broken off and the head of the radius grazed. The joint surfaces are carious and partly absorbed.

Private A. L. H., "H," 1st Maine Cavalry, 22: Ream's Station, Va., 1st October; admitted hospital, Washington, 11th October; amputated by Acting Assistant Surgeon J. F. Thompson, 3d November, 1864. Recovered.
Contributed by Assistant Surgeon Philip C. Davis, U. S. Army.

615. f. 20. The bones of the left elbow, after amputation in the lowest third of the humerus. The coronoid process was split off by an oblique fracture, below the termination of which a fissure extends one inch down the shaft. The inner surface of the olecranon is also chipped.

Corporal C. W. J., "B," 108th New York: Fredericksburg, 13th December; admitted hospital, Alexandria, 19th; amputated by SurgeonE. Bentley, U. S. Vols., 22d; died, after secondary hæmorrhage, 28th December, 1862.
Contributed by the operator.

4262. f. 21. Three inches of the extremity of the left humerus. A bullet from behind passed obliquely through the joint, splitting off the inner condyle and a segment of two and a half inches of the shaft.

Private H. C., "E," 22d Illinois, 17: Winchester, 24th July; admitted hospital, Cumberland, 25th; amputated by Acting Assistant Surgeon Townsend, in the middle third, 30th July; discharged, 27th October, 1864.
Contributed by Surgeon J. B. Lewis, U. S. Vols.

182. f. 22. The lower portion of the left humerus. The outer condyle was fractured by a conoidal ball. Superficial necrosis occupies the outer border of the shaft for two inches.

Private J. McC., "H," 207th Pennsylvania, 39: Dinwiddie C. H., Va., 31st March; admitted hospital, Washington, 4th; amputated by Acting Assistant Surgeon A. H. Haven, 19th April; died of pyæmia, 1st May, 1865.
Contributed by Assistant Surgeon H. Allen, U. S. Army.

772. f. 23. The bones of the left elbow, amputated in the lowest third of the humerus after excision of the head and one inch of the shaft of the radius. The upper extremity of the radius is necrosed and the joint surfaces are carious.

Private G. W. P., 9th New York: Antietam, 17th September; excised by Assistant Surgeon Howard Pinkney, 9th New York; amputated, Frederick, 10th October; discharged the service, 12th November, 1862.
Contributed by Assistant Surgeon R. F. Weir, U. S. Army.
See class **VII.** A. A. c.

2752. f. 24. The bones of the left elbow, after amputation in the lowest third of the humerus. The posterior surface of the olecranon was grooved and the ulna probably fractured in the upper third. Primary amputation was performed through the neck of the radius, and the stump, as shown, is carious with slight deposits of callus.

Private J. H. E., "K," 106th Pennsylvania, Gettysburg, 3d July: amputated in the forearm, 5th July; amputated in the humerus, Philadelphia, 2d November, 1863.
Contributed by Acting Assistant Surgeon Thomas G. Morton.
See class **VIII.** A. A. d.

2638. f. 25. The lower half of the right humerus chiefly carious, after amputation for comminution involving the elbow followed by destructive inflammation. The specimen is in four fragments, the largest representing the shaft, of which the lower extremity displays a necrosed line of section, as though a primary excision had been attempted. The upper part of the specimen exhibits an indifferent periosteal deposit.

Private J. L. C., "L," 1st Maine Heavy Artillery, 17: Spottsylvania, 19th May; admitted hospital, Washington, 22d May; amputated by Acting Assistant Surgeon H. M. Dean, 22d June; died of pyæmia, 24th June, 1864.
Contributed by the operator.
See 2667, **VI.** A. B. f. 1.

2789. The bones of the right elbow, amputated in the lowest third of the humerus four weeks after fracture of the joint.
f. 26. The outer condyle was carried away, the head of the radius broken and a complete oblique fracture made in the ulna opposite the radial tuberosity. The fractured portions are necrosed and partly absorbed, and the entire articular surfaces eroded. The shafts of the bones are coated with a thin deposit of callus.

Corporal P. T. H., "A," 19th Massachusetts: Gettysburg, 2d July; amputated, Philadelphia, 29th; died from pyæmia, 3d August, 1863.

Contributed by Acting Assistant Surgeon S. R. Skillern.

494. The bones of the left elbow. From the ulna two inches immediately below the olecranon have been removed
f. 27. by gunshot.

Private J. L., "K," 116th Pennsylvania: Fredericksburg, 13th December; admitted hospital, Washington, 17th; amputated by Acting Assistant Surgeon W. Eddy, 20th December, 1862; transferred to Veteran Reserve Corps, 24th March, 1864.

Contributed by the operator.

1549. The bones of the left elbow, after successful amputation in the lowest third of the humerus. Both bones of the
f. 28. forearm are completely shattered, the radius below the head and the ulna in the coronoid and olecranon processes.

Contributed by Surgeon Robert Thomain, U. S. Vols.

3208. The bones of the right elbow, after amputation in the lowest third of the humerus for fracture of the outer
f. 29. condyle by an iron canister shot, which is attached. In the humerus there are two sections, the lower being an inch and a quarter below the final one.

Second Lieutenant G. F. Q., "K," 165th New York, 33: Ream's Station, Va., 25th August; admitted hospital, Washington, 28th August; amputated by Surgeon D. W. Bliss, U. S. Vols., 7th September, 1864. Recovered.

Contributed by the operator.

See class **XXVII.** B. A. c.

2790. The bones of the left elbow, after amputation in the lowest third. The outer half of the extremity of the humerus
f. 30. was carried away. The entire articular surfaces are carious.

Private C. A. L., "F," 5th Excelsior (New York Volunteers): Gettysburg, 2d July; amputated, Philadelphia, 2d August; died, 10th August, 1863.

Contributed by Acting Assistant Surgeon S. R. Skillern.

4108. The bones of the right elbow, after amputation in the lowest third of the humerus for a perforating fracture
f. 31. directly over the joint. The bullet entered from before, chipped the coronoid process of the ulna, carried away the central portion of the trochlea, shattered the olecranon and caused a vertical fracture of the humerus, which terminated in a transverse one two inches above the condyles. The forearm was probably partly flexed at the time of injury.

Corporal F. R. L., "D," 1st Maine Heavy Artillery, 23: Petersburg, 9th September; amputated by Surgeon J. S. Jamison, 86th New York, 10th September, 1864; discharged the service, 5th May, 1865.

Contributed by the operator.

862. The upper thirds of the bones of the right forearm. A bullet passing laterally has shattered the radius at its
f. 32. neck, and the ulna at the same level. A considerable deposit of callus has resulted in partial consolidation of each bone, but the adjoining parts are necrosed and the union is very imperfect.

Private J. McG., "H," 9th New York: Antietam, 17th September; admitted hospital, Chester, Penna., 2d October; amputated in the humerus by Acting Assistant Surgeon Lewis Fisher, 25th November, 1862. Recovered.

Contributed by the operator.

2104. The bones of the right elbow, after amputation in the lowest third of the humerus for fracture of the joint. The
f. 33. outer condyle and greater portion of the trochlea were shot away while in the act of firing. The olecranon, the fractured extremity and the head of the radius are carious and partially absorbed.

Private A. J. D., "F," 25th Illinois: Mission Ridge, 25th November; admitted hospital, Chattanooga, 1st December, 1863; amputated, 17th January; died of pyæmia, 26th January, 1864.

Contributed by Assistant Surgeon Roberts Bartholow, U. S. Army.

2129. The lowest third of the left humerus, the radius and the greater portion of the ulna. The upper third of the ulna
f. 34. has been excised, the head of the radius is dislocated backward, and the elbow is partially anchylosed at right angles. The head of the radius is enlarged and carious.

Private D. L., "D," 72d Indiana: admitted hospital, Murfreesboro', 27th June; portion of ulna excised, 28th June; did well until gangrene set in, 20th October; amputated at the junction of the lower thirds by Surgeon I. Moses, U. S. Vols., 30th October, 1863. Recovered.

Contributed by the operator.

See 1750, **VII.** A. B. d. 77.

See class **XXIII.** A. B.

2980. The bones of the right elbow, apparently after amputation in the lowest third of the humerus. The external
f. 35. condyle has been carried away and the head of the radius deeply gouged by the passage of a bullet from front to rear.

Contributor and history unknown.

864. The bones of the right elbow. The lower extremity of the humerus, except the outer condyle, and the upper
f. 36. portion of the radius have been carried away. The joint extremities are carious.

Private J. A. L., 1st Pennsylvania Reserves: Antietam, 17th September; admitted hospital, Frederick, 29th September; amputated after erysipelas, 4th October, 1862. Recovered.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

See class **XXIII.** A. A.

2815. The bones of the left elbow. The humerus was fractured without comminution just above the line of the
f. 37. ligaments, an oblique fracture extending toward the inner condyle. The entire articular surfaces have been destroyed by ulceration from the secondary involvement of the joint.

Private G. A. B., "I," 8th Ohio, 26: Cold Harbor, 2d June; admitted hospital, Washington, 24th; amputated by Surgeon N. R. Mosely, U. S. Vols.; died of pyæmia, 11th July, 1864.

Contributed by Acting Assistant Surgeon W. H. Ensign.

2962. The bones of the right elbow, apparently after amputation in the lowest third of the humerus. The trochlea is
f. 38. shattered and the shaft for three inches above the articulation. The articular surfaces of the three bones are carious. Near the lines of fracture in the shaft there is some periosteal deposit.

Contributor and history unknown.

4166. The lowest third of the right humerus and the greater portions of the bones of the forearm. The radius is
f. 39. shattered in its middle and upper thirds, and the humerus is fractured above the outer condyle, involving the joint.

There is no history of the position of the arm at the time of the wound, but an examination of the specimen shows it probably to have been as follows: The forearm, flexed at nearly a right angle, was struck on the posterior surface of the radius in the middle third by a bullet coming from the front. Minute fragments of lead show the nature of the missile and its general direction, and the severe longitudinal splintering indicates its probable course. The missile, slightly deflected, has then struck the humerus just above the outer condyle and, passing backward, broken off a large portion of the posterior surface. The outer condyle is broken and two complete fractures enter the joint. The specimen is chiefly interesting as an illustration how one missile may cause two distinct wounds of the same extremity.

First Lieutenant R. L. T., "G," 34th Virginia, (Rebel,) 38: wounded, 6th April; admitted hospital, City Point, 14th; amputated by Assistant Surgeon Wm. Carroll, U. S. Vols., 19th April; released, 6th June, 1865.

Contributed by the operator.

See class **VIII.** A. B. d.

2010. The upper extremities of the bones of the left forearm and a portion of the lowest third of the humerus. Two
f. 40. and a half inches of the extremity of the humerus have been excised for fracture.

Second Lieutenant A. P. H., "E," 8th New York Heavy Artillery, 20: Ream's Station, Va., 25th August; excised, 26th; admitted hospital, Washington, 28th August; amputated for secondary hæmorrhage by Surgeon N. B. Mosely, U. S. Vols., 1st September, 1864. Recovered.

Contributed by Acting Assistant Surgeon J. M. Downs.

See class **VII.** A. A. c.

4059. The lowest third of the left forearm. A ball entered the radial side of left forearm, passed upward and inward,
f. 41. and struck the humerus half an inch above the inner condyle. The posterior surface of the extremity of the shaft is torn away, and an oblique fracture extends through the radial portion of the trochlea.

Corporal J. F. W., "G," 4th New York Heavy Artillery: South Side R. R., Va., 2d April; admitted hospital, Washington, 5th; amputated, 7th; died, 17th April, 1865.

Contributed by Acting Assistant Surgeon G. K. Smith.

878. The lowest third of the right humerus and upper portions of the bones of the forearm. The articular surfaces are
f. 42. carious, apparently after a partial fracture with fissuring of the coronoid process and the adjoining extremity of the humerus. There are slight layers of new osseous material on the shafts. The specimen is evidently from an amputation.

Contributed by Acting Assistant Surgeon Joseph Leidy.

2873. The lowest third of the left humerus and the upper halves of the bones of the forearm. Sequestra involved
f. 43. with slight osseous deposits occupy the shafts of both ulna and radius. The articular surfaces are eroded.

Private P. B., "A," 31st Maine, 21: wrist wounded, Spottsylvania, 12th May; forearm amputated, 14th; admitted hospital, Washington, 25th May; arm amputated for erysipelas by Surgeon N. R. Mosely, U. S. Vols., 15th July, 1864. Recovered.

Contributed by Acting Assistant Surgeon Samuel Graham.

See classes **IX.** A. A. e.; **XXIII.** A. A.

1553. The bones of the right elbow, as if amputated at the junction of the lower thirds of the humerus after fracture.
f. 44. The olecranon and outer condyle were carried away, as if by a missile passing obliquely on the posterior surface.
Contributed by Surgeon J. H. Brinton, U. S. Vols.

3370. The bones of the right elbow, after amputation at the junction of the lower thirds. The inner condyle is
f. 45. chipped and the articular surfaces are eroded by ulceration.
Private C. H. N., "G," 21st Wisconsin, 23: Resaca, Ga., 24th May; admitted hospital, Nashville, 27th May; amputated, 3d June; died from pyæmia, 12th August, 1864.
Contributed by Surgeon R. L. Stanford, U. S. Vols.

542. The lowest third of the left humerus and upper portion of the bones of the forearm, amputated after comminution
f. 46. without displacement of fragments. A fissure extends on the posterior surface to near the outer condyle and the bones adjoining the joint are coated with a periosteal deposit.
Contributed by Surgeon David Prince, U. S. Vols.

3567. The bones of the left elbow, after amputation at the junction of the lower thirds of the humerus. A bullet
f. 47. passed directly through the joint, carrying away the radial portion of the ulna and causing an oblique partial fracture to extend two inches up the shaft. The articular surfaces generally are eroded.
Sergeant J. C., "D," 6th Maine, 38: wounded, 11th May; admitted hospital, Washington, 15th; amputated, 21st June, 1864. Recovered.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.

3435. The lowest third of the right humerus, struck just above the inner condyle and obliquely fractured so as to involve
f. 48. the outer condyle.
Private T. K., "B," 106th New York, 34: Fisher's Hill, Va., 21st September; admitted hospital, Baltimore, 4th October; amputated by Acting Assistant Surgeon B. B. Miles, 5th; died of pyæmia, 16th October, 1864.
Contributed by the operator.

4127. The lowest third of the right humerus, amputated for fracture through the articulation from a piece of shell
f. 49. striking just above the inner condyle.
Private P. B., "D," 39th Massachusetts: amputated by Surgeon E. G. Chase, 104th New York.
Contributed by the operator.

3649. The lowest third of the right humerus and upper portions of the bones of the forearm, after excision of the
f. 50. olecranon and condyloid extremity. There was no reparative effort.
Private J M., "D," 1st Maine Cavalry, 26: White's Tavern, Va., 16th August; excision performed in the field; admitted hospital, Philadelphia, 20th; amputated at the junction of the lower thirds of the humerus for secondary hæmorrhage, 28th August, 1864. Recovered.
Contributed by Acting Assistant Surgeon D. Kennedy.
See class **VII.** A. A. C.

1590. The lowest third of the left humerus, the greater portion of the ulna and the lower half of the radius. The
f. 51. upper half of the radius and the ulna above the base of the coronoid process have been removed by excision. Some periosteal roughness exists on the upper and posterior part of the shaft of the ulna, and the posterior part of the shaft of the humerus possesses spongy deposit. Excepting a little erosion of the outer condyle, the articular surface is not disturbed. The humerus has apparently been amputated at the junction of the lower thirds.
Contributor and history unknown.
See class **VII.** A. A. C.

132. The lowest third of the left humerus and upper halves of the bones of the forearm, probably amputated after
f. 52. fracture of the elbow. A nearly longitudinal fracture has split off the lower and outer four inches of the humerus. The tip of the olecranon is fractured and the articular surfaces of the three bones are carious. A large fragment of the shaft has reunited with displacement. The specimen shows the epiphyseal lines very well.
Private J. T. C., "K," 51st New York: Second Bull Run, 30th August; admitted hospital, Washington, 14th September; amputated by Acting Assistant Surgeon Francis Brown.
Contributed by the operator.

3950. The lowest third of the left humerus, obliquely fractured in the outer condyle and inner border of the shaft. The
f. 53. articular surface is carious.
J. L., "K," 14th Virginia.
Received from General Hospital, Frederick, Md.

2836. The lowest third of the left humerus and greater part of the bones of the forearm. The ulna was fractured at the
f. 54. base of the olecranon, from which fragments were removed on the field. The radius and coronoid process are firmly anchylosed with the humerus. The shaft of the ulna is not joined to the head. New and spongy bone has been thrown out around the joint.

Private C. A., "B," 1st Pennsylvania Rifles: Wilderness, 7th May; admitted hospital, Washington, 26th May; amputated by Acting Assistant Surgeon John Morris, 11th July; died, 28th July, 1864.

Contributed by Acting Assistant Surgeon E. S. Stebbins.

2950. The lowest third of the left humerus and upper portions of the bones of the forearm. The joint has been opened,
f. 55. its articular surfaces are carious and partly absorbed, and the various prominences have received slight irregular deposits of spongy callus.

Corporal J. M. L., "A," 8th Maryland, 29: Spottsylvania, 8th May; admitted hospital, Washington, 25th May; amputated, 6th August; died, 6th August, 1864.

Contributed by Acting Assistant Surgeon J. Minis.

2063. The upper halves of the bones of the right forearm, and the humerus amputated at the junction of the lower thirds,
f. 56. two months after fracture of the joint by a conoidal ball. A conoidal ball carried away the olecranon. A considerable splinter of the posterior portion of the ulna is attached by callus out of position. The upper portion of the ulna and head of the radius are necrosed, as well as the articular surface of the humerus, of which a portion has been absorbed. The shaft of each bone has a slight coating of new osseous matter.

Private S. B. C., "C," 37th North Carolina (Rebel): Gettysburg, 3d July; amputated, Chester, Penna., 8th September, 1863. Recovered.

Contributed by Acting Assistant Surgeon G. Martin.

2556. The lowest third of the right humerus, amputated after a longitudinal fracture of the inner border splitting off that
f. 57. condyle.

Private J. W., "D," 2d New York Cavalry, 33: Cedar Creek, Va., 19th October; admitted hospital, Philadelphia, 17th November; amputated for secondary hæmorrhage by Acting Assistant Surgeon W. P. Moon, 21st November; died exhausted, 3d December, 1864.

Contributed by Acting Assistant Surgeon L. C. Cummins

1175. The upper two-thirds of the bones of the left forearm and the lowest third of the humerus. A sequestrum,
f. 58. surrounded by a fair involucrum, occupies the entire radius, and the ulna and humerus are anchylosed.

Private W. J. N., "E," 1st Michigan: wrist fractured by a conoidal ball, Second Bull Run, 30th August; amputated, Washington, 3d September, 1862; amputated in the lowest third of the humerus, 3d April, 1863. Recovered.

Contributed by Surgeon Thomas R. Crosby, U. S. Vols.

See 1176, **XXI.** A. B. b. 4.

See class **IX.** A. A. e.

2327. The bones of the right elbow, after amputation in the middle third. The inner condyle was carried away, the
f. 59. trochlea fractured, and a nearly perpendicular fracture extended two inches to the border of the shaft.

Corporal J. J. D., "H," 26th Michigan: Wilderness, 12th May; admitted hospital, Washington, 16th; amputated, 17th May; deserted from a Philadelphia hospital, 23d November, 1864.

Contributed by Acting Assistant Surgeon A. Ansell.

2975. The bones of the right elbow, after amputation in the middle third of the humerus. A vertical fracture extending
f. 60. two inches upward has carried away the outer half of the articular portion of the humerus.

Corporal T. A., "I," 32d Maine: Petersburg, 30th July; admitted hospital, Washington, 3d August; amputated by Surgeon A. T. Sheldon, U. S. Vols., 7th August, 1864; discharged the service, 6th March, 1865.

Contributed by the operator.

223. The bones of the right elbow, after amputation in the middle of the humerus for a fracture of the joint, as if by
f. 61. a bullet passing transversely obliquely along the anterior surface when partially flexed. The head of the radius and outer condyle are fractured, the olecranon is chipped and the inner border of the coronoid process broken off, the middle portion of the trochlea destroyed and the entire inner condyle and ulnar portion of the trochlea split off. The fractured surfaces are carious, but are bordered with periosteal effusions. On the inner condyle is appreciable new-bone formation.

Contributed by Acting Assistant Surgeon E. Livezey.

361. The bones of the right elbow, after amputation in the middle third of the humerus for fracture just above the
f. 62. condyles. Two oblique fissures extend down into the articulation.

Private W. L., 1st Delaware: Antietam, 17th September; amputated, Frederick, 30th September; died of irritative fever, 16th October, 1862.

Contributed by Surgeon H. S. Hewit, U. S. Vols.

180. The lower half of the right humerus, with a partly split conoidal ball impacted against the shaft posteriorly,
f. 63. apparently amputated. A complete fracture passes through the trochlea, and the compact bone of the olecranon depression has many fissures. An oblique fracture extends three and a half inches up the shaft.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

See class **XXVII.** B. B. d.

4053. The bones of the left elbow, after amputation for oblique fracture of two inches of the radius with loss of
f. 64. substance. The upper part of the amputated portion has been removed.

Private E. B., "D," 7th New York, 31: Petersburg, 31st March; admitted hospital, Washington, 6th April; amputated by Assistant Surgeon Alfred Delaney, U. S. Volunteers, 11th April, 1865.

Contributed by the operator.

996. The bones of the left elbow. While flexed a conoidal ball, entering over but not touching the olecranon,
f. 65. comminuted the ulnar portion of the trochlea, nearly detached the inner condyle, chipped the coronoid process and escaped over the head of the radius. The condyle is partially reunited by slight deposits of callus, the bony track of the ball is carious and the articular surfaces are destroyed by ulceration.

Private R. M., 81st Pennsylvania, 35: Fredericksburg, 13th December; admitted hospital, Point Lookout, Md., 16th December, 1862; amputated in the middle third by Acting Assistant Surgeon John Stearns, January, 1863.

Contributed by Assistant Surgeon C. Wagner, U. S. Army.

350. The lower half of the left humerus, after amputation for fracture of the joint. The outer condyle has been carried
f. 66. away and a large fragment of the shaft split off and afterward partially reunited.

Private A. H. S., "D," 3d Maine: Bull Run, 21st July; admitted hospital, Washington, 22d; erysipelas occurred, 23d July; amputated, about 20th August; discharged healed, 21st September, 1861.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

See class **XXIII.** A. A.

2566. The lower half of the left humerus, amputated for comminution of the lowest third with a fracture extending
f. 67. through the trochlea. The borders of the fracture are necrosed, and on the posterior surface of the shaft there has been some periosteal deposit.

Private A. D., "E," 8th New York Heavy Artillery: Cold Harbor, 3d June; amputated, Washington, 20th; died, 23d June, 1864.

Contributed by Surgeon N. R. Mosely, U. S. Vols.

653. The lower half of the left humerus, amputated. The bone is comminuted through the coronoid and olecranon
f. 68. fossæ, the internal condyle and ulnar portion of the trochlea are detached, and an oblique fissure runs two inches up the anterior border of the shaft. The articular surface is carious.

Private P. McC., 140th Pennsylvania, 26: Fredericksburg, 13th December; admitted hospital, Point Lookout, 16th December, 1862; amputated by Assistant Surgeon C. Wagner, U. S. Army, 1st January, 1863. Recovered.

Contributed by the operator.

See 931, **VIII.** A. B. d. 35.

2027. The olecranon and the lower extremity of the left humerus, amputated just above the epiphysis for extensive
f. 69. disorganization of the soft parts following fracture of the inner condyle.

Private W. H., Rappahannock Station, 7th November; admitted hospital, Washington, 9th; amputated by Surgeon R. B. Bontecou, U. S. Vols., 23d November, 1864. Recovered.

Contributed by the operator.

2325. The lower extremity of the left humerus and parts of the bones of the forearm. Primary excision of the upper
f. 70. fourths of the radius and ulna had been performed, and the extremity of the ulna is superficially necrosed. The extremity of the humerus is eroded.

Captain J. G. C., "E," 86th New York: Wilderness, 6th May; excised, 7th; admitted hospital, Washington, 16th; amputated in the middle third by Assistant Surgeon J. C. McKee, U. S. Army, 22d May; discharged the service, 19th September, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

See class **VII.** A. A. c.

907. The lower half of the right humerus, apparently amputated for fracture and involvement of the joint. The
f. 71. missile has impinged against the anterior surface just above the condyles, causing an oblique fracture of the shaft, a transversely oblique fracture through the coronoid fossa and outer condyle, and a vertical fracture through the trochlea. The articular surface is carious, the borders of the fracture are necrosed and slight osseous deposits have occurred in the shaft.

Contributed by Acting Assistant Surgeon A. E. Keyes.

3248. The lower portion of the right humerus with the upper portions of the bones of the forearm. There has been a fracture
f. 72. of the tip of the olecranon, a fissure through the coronoid process, and, probably, a fracture of the condyles, for which the lower extremity of the humerus has been excised. The specimen shows partial erosion of the heads o the radius and the ulna. The humerus was amputated in the middle third, having been superficially necrosed to that point.

Private H. P., "A," 14th Connecticut, 36: admitted hospital, Washington, 17th August; amputated by Acting Assistant Surgeon W. H. Ensign; died exhausted, 24th October, 1864.

Contributed by Acting Assistant Surgeon W. H. Cral.

See class **VII.** A. A. C.

1663. The lower half of the right humerus, probably amputated. A bullet, apparently round, has lodged in the shaft
f. 73. just above the coronoid fossa, producing an oblique fracture of the inner border for four inches. Partial fractures extend into the joint, necrosed fragments border the lines of fracture and scales of lead have been left by the embedded ball. A thin layer of osseous deposit coats the shaft.

Contributed from Fort Schuyler, N. Y. H., by Assistant Surgeon Roberts Bartholow, U. S. Army.

192. The upper portion of the left ulna, from the olecranon process of which several fragments have been removed.
f. 74. The articular surface is somewhat eroded, and amputation was subsequently performed in the middle third of the arm.

Private D. U., "M," 4th Pennsylvania Cavalry, 35: Dinwiddie C H., Va., 31st March; admitted hospital, Washington, 4th April; fragments removed, 14th; arm amputated by Acting Assistant Surgeon H. Craft, 24th April; transferred to another hospital, 18th July, 1865.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

1412. The lower half of the right humerus, apparently amputated for a nearly transverse fracture through both condyles.
f. 75. Received from Second Corps from Surgeon Wood.

1664. The bones of the right elbow, from which the olecranon and the lowest two inches of the humerus have been
f. 76. excised, subsequently amputated in the middle third of the arm. The bones of the forearm are anchylosed, and the extremity of the humerus presents an irregular deposit of callus.

Private W. L., "C," 20th Massachusetts: Fredericksburg, 13th December, 1862. The joint was excised, and amputation of the arm was performed afterward. Recovered.

Contributed by Assistant Surgeon Roberts Bartholow, U. S. Army.

See class **VII.** A. A. C.

222. The bones of the right elbow, after amputation in the middle third of the humerus. The coronoid process of the
f. 77. ulna and the inner condyle are shattered, and an oblique fracture extends through the extremity of the shaft.

Private G. A. W., "I," 5th Michigan: Williamsburg, 5th May; admitted hospital, Philadelphia, 19th; amputated by Surgeon John Neill, U. S. Vols., 21st May; died from pyæmia, 24th June, 1862.

Contributed by Acting Assistant Surgeon E. Livezey.

820. The lower half of the right humerus, comminuted just above the condyles and amputated two weeks after injury.
f. 78. The fracture extends into the joint, passing directly through the trochlea, the articular surface of which is eroded.

Private J. H. P., "A," 29th Massachusetts: Antietam, 17th September; admitted hospital, Frederick, 22d September; amputated by Acting Assistant Surgeon W. S. Adams, 3d October; attacked with hospital gangrene, 6th November, 1862. Recovered.

Contributed by the operator.

See class **XXIII.** A. B.

168. The left humerus, amputated in the middle third after shattering of the articular extremity.
f. 79. Private W. F. A., Knapp's Pennsylvania Battery: Antietam, 17th September; admitted hospital, Washington, 22d; amputated, 26th September, 1862. Recovered.

Contributed by Assistant Surgeon C. A. McCall, U. S. Army.

165. The bones of the right elbow, after amputation in the middle third for shattering of the upper two inches of the ulna
f. 80. and the inner condyle.

Private W. R. R., "H," 20th New York State Militia: Second Bull Run, 30th August; admitted hospital, Washington, 1st September; amputated, 10th; died from pyæmia, 28th September, 1862.

Contributed by Assistant Surgeon C. A. McCall, U. S. Army.

1179. The lower half of the right humerus, comminuted above the condyles involving the joint. The shaft is destroyed
f. 81. for three inches and the articular surface carious.

Private P. F., "K," 23d New Jersey, 18: Second Fredericksburg, 3d May; admitted hospital, Washington, 8th; amputated by Assistant Surgeon C. A. McCall, U. S. Army, 18th May; transferred North, 9th June, 1863.

Contributed by the operator.

269. The bones of the right elbow, as if amputated in the middle third. The inner half of the extremity of the shaft
f. 82. has been torn off and all the articular surfaces are carious.

Contributed by Acting Assistant Surgeon Edward Hartshorne.

29. The upper portions of the bones of the right forearm and the humerus, amputated at the middle for a fracture from
f. 83. a conoidal ball which destroyed the trochlea and outer condyle, split off the inner condyle and shattered the head of the radius. The coronoid process of the ulna was also broken off. A few displaced fragments of the head of the radius are retained by the slightest osseous deposits. The ulna articular surface is much eroded.

Corporal J. H., "K," 1st Michigan: Malvern Hill, 1st July; admitted hospital, Washington, 4th; amputated by Acting Assistant Surgeon D. H. Rankin, 20th July, 1862. Recovered from the operation.

Contributed by the operator.

225. The bones of the right forearm and a portion of the humerus. The joint was shattered and primary excision,
f. 84. removing the upper third of the ulna and the lowest fourth of the humerus, was performed. The ulna is necrosed nearly to its middle, with a small sequestrum yet attached; the head of the radius is carious; the humerus is diseased nearly to its centre, where it was amputated. About midway of the specimen is a moderate deposit of callus.

Private J. A. S., "A," 3d New Jersey: Gaines' Mill, 27th June; excised by Dr. John Swinburne, Savage's Station, the same day; captured; admitted hospital, Philadelphia, 31st July; amputated, 22d September, 1862. Recovered.

Contributed by Acting Assistant Surgeon E. Livezey.

See class **VII.** A. A. c.

2893. The lower half of the right humerus and the upper portions of the bones of the forearm. The external condyle was
f. 85. carried away and the humerus obliquely fractured in its lowest third by a conoidal ball. The head of the radius, which may have been touched by the bullet, is partly absorbed, and the articular surface of the olecranon is carious. The humeral extremity is spongy and partly absorbed. A slender sequestrum, nearly detached, occupies the shaft on the posterior surface, and fringes of fragile callus border the fracture.

Private H. B., "K," 91st Pennsylvania, 18: Petersburg, 19th June; admitted hospital, Washington, 24th June; amputated by Surgeon N. R. Mosely, U. S. Vols., 21st July, 1864.

Contributed by Acting Assistant Surgeon H. G. Bates.

331. The lower half of the left humerus and the bones of the forearm. A bullet has passed directly through the
f. 86. olecranon, splitting it and the shaft for three inches below the coronoid process. A fragment of the olecranon has become attached to the inner condyle. The greater part of the humeral articular surface and the head of the radius are carious. Very trivial osseous deposits exist about the fracture.

Private C. V., "H," 16th Michigan: Second Bull Run, 30th August; admitted hospital, Washington, 1st September; amputated, 21st October, 1862. Recovered.

Contributed by Assistant Surgeon C. A. McCall, U. S. Army.

1205. The lower half of the right humerus and upper portions of the bones of the forearm, after amputation. A ball
f. 87. entered the olecranon fossa, destroying the trochlea and tearing up the coronoid process and anterior portion of the olecranon. The remainder of the articular surface, not involved in the comminution, is carious.

Private J. O., "B," 55th Ohio, 17: Chancellorsville, 2d May; admitted hospital, Alexandria, 25th May; amputated the same day; discharged the service, 27th August, 1863.

Contributed by Surgeon Charles Page, U. S. Army.

3354. The bones of the right elbow, after amputation in the middle third of the humerus. The upper three inches of
f. 88. the radius, except the head, are carried away and the articulation is somewhat eroded.

Private G. S., "E," 23d Kentucky: Dallas, Ga., 27th May; admitted hospital, Nashville, 10th June; amputated by Surgeon S. E. Fuller, U. S. Vols., 15th June, 1864. Recovered.

Contributed by the operator.

2264. The upper half of the radius, shattered below the head by a bullet which opened the joint. The missile, some-
f. 89. what battered, is mounted with the specimen.

Private F. H., "K," 5th New York Cavalry, 29: Wilderness, 9th May; admitted hospital, Washington, 11th May; amputated at the junction of the upper thirds of the humerus by Surgeon D. W. Bliss, U. S. Vols.; discharged the service, 7th November, 1864.

Contributed by the operator.

See class **XXVII.** B. B. d.

3610. f. 90. The bones of the right elbow, after fracture of the outer condyle by a bullet which entered the forearm three inches below the joint. The extremity of the humerus is carious. The articular surfaces of the bones of the forearm are carious and partly absorbed. A very slight osseous deposit exists on the posterior surface.

Private J. N. P., "I," 27th Massachusetts, 22: Wilderness, 5th May; admitted hospital, Philadelphia, 18th May; amputated at the junction of the upper thirds of the humerus, 12th July; died with pyæmic symptoms, 24th July, 1864.

Contributed by Acting Assistant Surgeon J. H. Jamar.

2889. f. 91. The bones of the right elbow, amputated at the junction of the upper thirds after excision for gunshot. The articular extremities are carious for several inches.

Private S. W., "K," 45th Pennsylvania, 48: Wilderness, 6th May; admitted hospital, Washington, 16th; three inches of the ulna and the extremity of the humerus excised by Surgeon A. F. Sheldon, U. S. Vols., 24th May; amputated for gangrene, 25th July, 1864; transferred to Philadelphia, 6th April, 1865.

Contributed by the operator.

See class **VII.** A. B. d.

2868. f. 92. The lower thirds of the left humerus, amputated after complete shattering by a conoidal ball of the lowest third with involvement of the joint on the articular surface.

Private L. F., "B," 7th New Hampshire: Olustee, Fla., February; admitted hospital, Hilton Head, S. C., 25th February; amputated, 7th March; discharged the service, 27th June, 1864.

Contributed by Assistant Surgeon J. E. Semple, U. S. Army.

See class **XXVII.** B. B. d.

2784. f. 93. The bones of the right elbow, after amputation at the junction of the upper thirds three weeks after injury. A complete fracture separates the olecranon without displacement. A longitudinal fracture extends three inches down the inner border of the ulna; fragments to the extent of a square inch are wanting on the outer portion, and the intervening bone on the posterior surface is necrosed. A large portion of the shaft has been removed from the specimen.

Private M. A. R., "F," 2d Pennsylvania Reserves: Gettysburg, 2d July; admitted hospital, Philadelphia, 11th; amputated high up, on account of sloughing of the soft parts, by Acting Assistant Surgeon J. A. Buchanan, 5th August; died from pyæmia, 19th August, 1863.

Contributed by the operator.

3209. f. 94. The upper extremity of the bones of the right forearm and the lower two-thirds of the humerus. The radius and ulna do not appear to have been directly injured, but are carious and partly absorbed and have united at their adjoining borders. An excision of the lower extremity of the humerus has been made. A loose sequestrum of six inches lies within a partial involucrum of spongy bone, the osseous deposit extending nearly to the point of amputation.

Private S. J. C., "D," 32d Massachusetts, 35: Spottsylvania, 12th May; excised in the field, 13th; admitted hospital, Washington, 18th May; amputated, 8th September, 1864; discharged, 5th January, 1865.

Contributed by Assistant Surgeon Philip C. Davis, U. S. Army.

See class **VII.** A. A. c.

16. f. 95. The lower two-thirds of the right humerus, amputated after comminution of the lowest fourth involving the joint. An oblique fracture has broken off the ulnar portion of the trochlea. The borders of the fracture are necrosed and present lines of demarcation.

Private G. A. C., 63d Pennsylvania: Fair Oaks, 31st May; amputated, Washington, 28th June; died from pyæmia, 4th July, 1862.

Contributed by Acting Assistant Surgeon D. W. Cheever.

807. f. 96. The upper portions of the bones of the right forearm and the greater portion of the shaft of the humerus, amputated in the upper third after excision of the elbow for fracture by a conoidal ball. The extremities of the radius and ulna are carious, and no attempt at reparation has been made. The humerus is necrosed to the line of section.

Private P. D., "D," 69th New York: Antietam, 17th September; excised, Frederick, 2d October; amputated by Surgeon H. S. Hewit, U. S. Vols., 4th December, 1862. Recovered.

Contributed by the operator.

See 458, **VII.** A. B. d. 42.

3612. f. 97. The bones of the left elbow, after amputation in the upper third. The lowest third of the humerus was shattered by a round bullet, the line of solution extending below the posterior and anterior ligaments. The articular surfaces are disorganized by ulceration.

Private J. A., "M," 1st U. S. Artillery: near Drury's Bluff, Va., 16th May; admitted hospital, Philadelphia, 20th May; amputated by Acting Assistant Surgeon W. P. Moon, 22d June, 1864. Recovered.

Contributed by Acting Assistant Surgeon Alfred S. Gibbs.

197. f. 98. The greater portion of the right humerus, apparently amputated in the upper third. The shaft is shattered above the condyles and the outer condyle is fractured.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

2767. f. 99. The bones of the right elbow. A bullet entered the forearm and passed out through the joint, carrying away the trochlea and extremity of the shaft and leaving the condyles. The humerus is obliquely fractured two and a half inches above the articulation. The fractured extremities of the humerus and the articular surfaces of the radius and ulna are necrosed. The bicipital tuberosity of the radius has received a slight coating of callus.

Private T. F. F., "I," 81st Pennsylvania, 23: Gettysburg, 2d July; admitted hospital, Philadelphia, 8th July; amputated in the upper third by Acting Assistant Surgeon John McClellan, 2d August; died from typhoid fever, 13th August, 1863.

Contributed by Acting Assistant Surgeon M. Keyser Know.

1174. f. 100. The bones of the right arm and forearm, amputated in the upper third of the humerus. The external condyle and the head of the radius are fractured, and the articular extremities are carious.

Private H. S., "C," 105th Pennsylvania: Chancellorsville, 3d May; admitted hospital, 9th; amputated, 27th May, 1863.

Contributed by Surgeon T. Antisell, U. S. Vols.

318. f. 101. The bones of the right elbow. A conoidal ball, passing laterally, shattered the neck of the radius and transversely fractured the head; it then lodged against the ulna below the coronoid process, shattering the upper third.

Captain D. C., "G," 22d New York: Second Bull Run, 30th August; admitted hospital, Alexandria, 31st August; amputated in the upper third for secondary hæmorrhage by Assistant Surgeon J. Bernard Brinton, U. S. Army, 13th September, 1862. Recovered.

Contributed by the operator.

1592. f. 102. The upper portions of the bones of the right forearm and the lower two-thirds of the humerus, after amputation for comminution of the extremity of the shaft by shell. Two complete fractures pass through the trochlea.

Captain J. E. L., "A," 5th Texas (Rebel): Gettysburg, 2d July; amputated by Assistant Surgeon E. de W. Breneman, U. S. Army, 6th July; died, Baltimore, 22d August, 1863.

Contributed by the operator.

368. f. 103. The bones of the left elbow, after amputation for involvement of the joint by erysipelas subsequent to amputation in the upper third of the forearm. On the posterior surfaces of the radius and ulna moderate deposits of callus have occurred. The joint surfaces are carious and the olecranon is nearly destroyed by absorption.

Private H. L., 2d Wisconsin: Second Bull Run, 28th August; forearm amputated in upper third, 30th August; admitted hospital, Washington, 1st September; amputated in the upper third of the humerus by Acting Assistant Surgeon H. A. Buck, 10th November, 1862. Healed by the first intention.

Contributed by the operator.

See classes **VIII.** A. A. d.; **VIII.** A. B. f.

1927. f. 104. The bones of the right elbow, after amputation in the upper third. The head of the radius and outer condyle were partially fractured. The periosteum was wanting for several inches on all the bones.

Private J. D. H., "K," 33d Massachusetts, 27: Lookout Mountain, 30th October; admitted hospital, Nashville, 10th November; amputated, 13th; died from pyæmia, 26th November, 1863.

Contributed by Assistant Surgeon D. McDill, 84th Illinois.

3323. f. 105. The bones of the right elbow, amputated in the upper third of the humerus after fracture. The inner half of the lower extremity of the humerus is carried away and the coronoid process fractured.

Private J. H. R., "H," 1st Maine Cavalry, 34: Charles City C. H., Va., 24th June; amputated by Assistant Surgeon T. Artaud, U. S. Vols., Alexandria, 15th July; died from pyæmia, 29th July, 1864.

Contributed by Acting Assistant Surgeon S. D. Twining

4123. f. 106. The lower half of the right humerus, with a fragment of conoidal ball lodged in the articulation. The bone is comminuted for six inches above the joint.

Private H. W., "H," 1st Massachusetts Heavy Artillery: probably Winchester, 19th September; amputated in the upper third by Surgeon Orpheus Evarts, 20th Indiana, 2d October, 1864.

Contributed by the operator.

See class **XXVII.** B. B. d.

401. f. 107. The bones of the right elbow, after amputation near the shoulder joint. The outer half of the head and neck of the radius was carried away, the external condyle was chipped and the soft parts much lacerated by a fragment of shell.

Contributed by Acting Assistant Surgeon A. A. Hines.

2208. The bones of the right forearm and the lower half of the humerus, amputated after excision of the elbow. The
f. 108. radius was obliquely fractured in the upper third of the shaft, and has partially united with some displacement. Another oblique fracture just below the head has also united. The line of excision cut off the head of the radius and the coronoid process of the ulna. The lower third of the humerus was excised, and the extremity of the shaft is necrosed.

Private J. R. R., "F," 65th Ohio: Chickamauga, 19th September; admitted hospital, Nashville, 11th November; excised, 13th; amputated three inches below the shoulder, 26th November, 1863. Recovered.

Contributed by Acting Assistant Surgeon W. H. Matlack.

See class **VII.** A. B. d.

2076. The upper halves of the bones of the left forearm and lower portion of the humerus, amputated at the surgical
f. 109. neck six weeks after injury. The ulna was shattered an inch below the coronoid process and an abscess involved the joint. All the articular surfaces are necrosed and partly absorbed. The upper part of the humerus was cut away for the convenience of shipment to the museum.

Private S. R., "I," 58th Indiana: Chickamauga, 19th September; admitted hospital, suffering with chronic diarrhœa and with the arm erysipelatous, Tullahoma, Tenn., 25th September: amputated, 3d November, 1863. Recovered.

Contributed by Surgeon Benjamin Woodward, 22d Illinois.

See class **XXIII.** A. A.

969. The lower half of the right humerus and upper portions of the bones of the forearm. A conoidal ball struck
f. 110. between the olecranon and outer condyle and was extracted midway between the elbow and shoulder three months afterward. The head of radius has nearly disappeared under absorption following fracture. The ulnar processes are not distinguishable, but several splinters are irregularly attached by callus to the extremity of that bone. The lower extremity of the humerus was comminuted, fragments covered with foliaceous callus are partially attached in irregular positions, and the extremity of the main body of the shaft is carious.

Private H. W., 27th Ohio: Corinth, Miss., 4th October; admitted hospital, Jackson, Tenn., 13th December, 1862; attacked with erysipelas, 29th January; upon the subsidence of which, amputation at the surgical neck was performed, 6th February; died, 17th February, 1863.

Contributed by Assistant Surgeon Joseph P. Wright, U. S. Army.

See class **XXIII.** A. A.

773. The lowest third of the right humerus and upper portions of the bones of the forearm. The outer condyle has
f. 111. been shot away.

Private M. S., "K," 26th New York: Antietam, 17th September; admitted hospital, Frederick, 19th; amputated at the shoulder joint, for sphacelas following erysipelas, by Assistant Surgeon R. F. Weir, U. S. Army, 3d October; died, 12th October, 1862.

Contributed by the operator.

See classes **V.** A. B. d.; **XXIII.** A. A.

205. The right forearm and lower half of the humerus. The head of the radius has been carried away and an oblique
f. 112. fracture extends for two inches down the shaft. The articular surface is destroyed by ulceration, and amputation of the humerus in its middle third has probably been made. The specimen also exhibits an old consolidated simple fracture of the radius.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

See class **VIII.** B. B. b.

322. The lowest third of the right humerus, amputated for oblique fracture near the inner condyle with loss of the
f. 113. posterior portion of the trochlea.

Private C. W., "F," 20th New York, 30: Second Bull Run, 30th August; admitted hospital, Alexandria, 2d September; amputated by Assistant Surgeon Alfred Delaney, U. S. Vols., 5th September, 1862.

Contributed by Surgeon John E. Summers, U S. Army.

3921. The upper third of the right radius, with an oblique fracture of the upper two inches extending through the
f. 114. head. The articular surface is carious.

Sergeant J. G. E., "D," 1st North Carolina (Rebel): Gettysburg, 1st July; admitted hospital, Frederick, 6th; amputated in the middle third, 20th July, 1863. Recovered.

Contributed by Acting Assistant Surgeon G. M. Paullin.

3397. The bones of the right forearm and the lower extremity of the humerus. Two and a half inches from the upper
f. 115. and middle thirds of the radius have been primarily excised. The humerus is obliquely fractured with the loss of the inner condyle, and secondary amputation has been performed in the lowest third. The two injuries are independent.

Contributor and history unknown.

See class **VII.** A. A. c.

946. The upper halves of the bones of the left forearm and the lower half of the humerus. The ulnar processes are
f. 116. split off by an oblique fracture, and the articulation is eroded. The outer condyle has been carried away. A transverse partial fracture exists above the inner condyle, and an oblique fracture in the shaft of the humerus terminates transversely three inches above the articulation.

Sergeant G. J., "K," 1st North Carolina: Olustee, Fla., 20th February; amputated by Acting Assistant Surgeon H. K. Neff, Beaufort, S. C., 4th March, 1864.

Contributed by the operator.

For other illustrations, see 3039, **VII.** A. B. d. 37; 942, **VII.** A. B. d. 48; 3042, **VII.** A. B. d. 49; 2811, **VII.** A. B. d. 78; 433, **VII.** A. B. g. 1.

g. Other Operations.

433. Nine small fragments, removed from the inner condyle of the left humerus.
g. 1. Private C. C., "A," 16th Michigan: admitted hospital, Baltimore, 21st July, 1862. The arm was subsequently amputated and the man recovered.

Contributed by Surgeon A. B. Hasson, U. S. Army.

See class **VII.** A. B. f.

1717. The lowest third of the right humerus and bones of the forearm. The external condyle has been fractured and
g. 2. removed. The articular surfaces are carious and slight osseous deposits exist upon the shaft.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

2787. The bones of the right elbow, seven weeks after fracture of the olecranon and inner condyle. All the adjoining
g. 3. osseous tissue is carious and much absorbed.

Private A. H., "C," 140th New York: Gettysburg, 2d July; admitted hospital, Philadelphia, 12th; fragments of bone removed, 17th July and 17th August; hæmorrhages, 26th July, 2d, 4th, 14th, 16th August; arteries ligated, 2d, 4th August; died, 18th August, 1863.

Contributed by Acting Assistant Surgeon W. F. Atlee.

See class **XVIII. II.** A. B. b.

2135. Three and a half inches of each of the bones entering the elbow, with nearly complete anchylosis after fracture
g. 4. by gunshot and removal of the olecranon. Callus has been largely effused around the joint and periosteal disturbance involves the entire specimen.

Private J. G., 26th Ohio: Chickamauga, 20th September; fragments of olecranon removed at the field hospital; died a few days after fatiguing transfer from Chattanooga to Murfreesboro'.

Contributed by Acting Assistant Surgeon Samuel Hart.

B. Injuries not caused by Gunshot.

A. Primary Conditions.
- a. Contusions, partial fractures and dislocations.
- b. Complete fractures.
- c. Excisions.
- d. Disarticulations.
- e. Amputations in the humerus.
- f. Other operations.

b. Complete Fractures.

See 2781, **VII.** C. 1.

B. Secondary Conditions.

a. Contusions and partial fractures.
b. Complete fractures.
c. Dislocations.
d. Caries consecutive upon other injury.
e. Excisions.
f. Disarticulations.
g. Amputations in the humerus.
h. Other operations.
i. Stumps.
k. Sequestra.

b. Complete Fractures.

385. The lower half of the left humerus and upper half of the ulna, completely anchylosed. There has been an impacted
b. 1. fracture of the elbow, the inner condyle being displaced forward and inward and resting on the coronoid process, which is also partially fractured and displaced. The olecranon rests in the olecranon fossa and both bones are firmly united in osseous anchylosis with lateral deformity.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

For other illustrations, see 3913, **VI.** A. B. d. 31.

g. Amputations in the Humerus.

1770. The lower half of the right humerus and the bones of the forearm, amputated two months after injury on a railroad.
g. 1. The bones of the forearm are fractured near the middle and again at their upper extremities. The greater portions of the shafts are necrosed, having slight and imperfect involucra. The fragments of the lower extremity of the humerus are attached to it in irregular positions by callus. The bones appear to be from a subject about sixteen years old.

—— ——: Railroad accident, Mound City, Ill., 18th April; amputated in middle third of humerus by Surgeon H. Wardner, U. S. Vols., 18th June, 1863. Recovered.

Contributed by the operator.

See class **VIII.** B. B. d.

C. Diseases.

2781. The lower half of the left humerus and the upper halves of the bones of the forearm. The trochlear surface is
C. 1. malformed, as if by displacement forward, so as to destroy the coronoid fossa; the head of the radius is much enlarged and flattened, with an articular surface double the ordinary size; the coronoid process is apparently displaced forward, and the olecranon is wanting, from a subsequent fracture. The only history is:

Corporal W. Q., "A," 95th New York: slightly wounded in the head, Gettysburg, 2d July; admitted hospital, Philadelphia, 9th July; absent from hospital 5th—21st August; under delirium tremens, twice leaped from a window sixteen feet, fracturing his elbow, 21st; died, 23d August, 1863.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

See class **VII.** B. A. b.

2632. Seventeen cartilaginous or osseous formations, spheroidal in shape, irregularly nodulated and varying from a
C. 2. diameter of one-half to one and one-fourth inches, taken from the elbow after amputation in the left arm for supposed malignant disease.

Private J. McC., "B," 159th New York: admitted hospital, with amputated arm, St. Louis, 11th June, 1863.

Contributed by Surgeon Jacob Bockee, U. S. Vols.

See class **XXIV.** C. B. d.

VIII. INJURIES AND DISEASES OF THE BONES OF THE FOREARM, INVOLVING NEITHER JOINT.

- **A.** Gunshot Injuries.
  - **A.** Primary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Excisions.
    - d. Amputated fractures.
    - e. Other operations.
  - **B.** Secondary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Excisions.
    - d. Amputated fractures.
    - e. Other operations.
    - f. Stumps
    - g. Sequestra.
- **B.** Injuries not caused by Gunshot.
  - **A.** Primary Conditions
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Excisions.
    - d. Amputated fractures.
    - e. Other operations.
  - **B.** Secondary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Excisions.
    - d. Amputated fractures.
    - e. Other operations.
    - f. Stumps.
    - g. Sequestra.
- **C.** Diseases.

VIII. BONES OF THE FOREARM.

A. Gunshot Injuries.

A. Primary Conditions. { a. Contusions and partial fractures. b. Complete fractures. c. Excisions. d. Amputated fractures. e. Other operations.

b. Complete Fractures.

472. The lower halves of the bones of the forearm. The radius is shattered in the lowest fourth of its shaft.
b. 1. Contributed by Acting Assistant Surgeon McGuigan.

2413. The bones of the right forearm. The ulna is shattered in the upper third, and is fractured without displacement
b. 2. at the lower extremity of the shaft.
Contributed by Surgeon J. H. Brinton, U. S. Vols.

320. The bones of the right forearm. The radius is transversely fractured without displacement in the middle third.
b. 3. The ulna is fractured with the loss of one inch in the middle third. There are no pathological changes noticeable in the specimen.
Contributed by Surgeon J. E. Summers, U. S. Army.

For other illustrations, see 478, **VII.** A. a. b. 1; 474, **VII.** A. a. b. 3.

c. Excisions.

1029. One and a half inches of the shaft of the ulna, excised at the battle of Fredericksburg.
c. 1. Contributed by Surgeon J. T. Calhoun, 5th Excelsior (74th New York Volunteers).

2406. The bones of the left forearm From the left ulna, one and a half inches at the junction of the upper thirds
c. 2. appears to have been excised. No secondary effort is noticeable.
Received after Chancellorsville.

1151. Fragments representing about two inches of bone, excised from the lowest third of the ulna.
c. 3. Private M. T., "I," 107th New York: Chancellorsville, 3d May, 1863; excised by Assistant Surgeon C. H. Lord, 102d New York.
Contributed by the operator.

672. Two and a half inches of the shaft of the radius, comminuted and excised.
c. 4. Contributed by Surgeon W. H. Leonard, 51st New York.

1152. Nearly three inches of the middle third of the ulna, excised for comminution. A much battered round ball is
c. 5. mounted with the specimen.
Private D. J. C., "A," 2d Massachusetts: Chancellorsville, 2d May, 1863; excised by Assistant Surgeon C. H. Lord, 102d New York.
Contributed by the operator.
See class **XXVII.** B. b. d.

4235. Six inches of the shaft of the right ulna, excised for a longitudinal fracture from a conoidal ball.
c. 6. Private W. B. B., "I," 124th New York, 37: Petersburg, 27th October; admitted hospital, Washington, 30th October; excised, 1st November, 1864. Recovered, except as to the power of rotation.
Contributed by Surgeon O. A. Judson, U. S. Vols.

For other illustrations, see 488, **VIII.** A. A. d. 10; 2206, **VIII.** A. B. c. 21; 3085, **VIII.** A. B. C. 24; 3086, **VIII.** A. B. c. 35; 3297, **VIII.** A. B. d. 12.

d. Amputated Fractures.

3093. The upper portions of the bones of the right forearm and the lowest fourth of the humerus, apparently primarily
d. 1. amputated. The radius is nearly transversely fractured in the upper third without displacement. The ulna is fractured nearly an inch higher than the first-named, with upward splintering and chipping of the anterior surface.
Received from the Army of the Potomac.

2038. The bones of the left forearm, primarily amputated after fracture by a conoidal ball in the upper third. The ulna
d. 2. is not comminuted, but the radius is broken up for the space of two inches below the tubercle.
Private W. B., "I," 14th Connecticut: Morton's Ford, 6th February; amputated, Second Corps Field Hospital, 8th February; discharged the service, 31st May, 1864.
Contributed by Surgeon J. Dwinelle, 106th Pennsylvania.

1503. The greater portion of the bones of the forearm. A bullet passed between the bones in the upper third, shattering
d. 3. the radius for two and the ulna for three inches. Primary amputation in the humerus was probably performed.
Contributed by Surgeon J. H. Brinton, U. S. Vols.

532. The bones of the right forearm. The ulna is fractured in the middle third, two inches of the outer half of the
d. 4. bone is wanting, and longitudinal fissuring extends for three inches above and below a transverse fracture. Primary amputation in the arm was probably performed.
Contributed by Assistant Surgeon G. M. McGill, U. S. Army.

4111. Portions of the bones of the left forearm, shattered in their lower extremities and apparently amputated in the
d. 5. middle.
Private J. D., "K," 7th New York: amputated by Surgeon W. B. Resfuouls, 12th September, 1864.
Received from the Army of the Potomac.

1675. The upper portion of the bones of the right forearm and the lowest third of the humerus. Both bones of the
d. 6. forearm are shattered at the extremities of the shafts by the antero-posterior passage of a round bullet.
Private N. H., "B," 2d U. S. Colored Troops: accidentally shot on guard, Mason's Island, Va.; amputated by Acting Assistant Surgeon N. J. Pettijohn.
Contributed by the operator.

1981. Two fragments of the bones of the right forearm, amputated after shattering by the premature discharge of a
d. 7. cannon.
Contributed by Acting Assistant Surgeon Alfred Muller.

2650. The bones of the left forearm, extensively comminuted. The ulna has three distinct transverse fractures in the
d. 8. upper two-thirds, connected by one longitudinal fracture on the posterior surface: the upmost fragment has a complete longitudinal fracture through it extending to the epiphysis. Two inches of the radius at the junction of the lower thirds is wanting, and the entire upper portion of the shaft is comminuted. The injury was probably from shell fire and was followed by primary amputation in the arm.
Received after Chancellorsville.

1637. The left wrist and hand with two inches of the lower extremity of the radius and two and a half of the ulna,
d. 9. and the elbow with three inches of the radius, two inches of the ulna and the lowest third of the humerus. The head of the radius is shattered by longitudinal fractures which extend up the shaft. The forearm was carried away by a round shot, which also lacerated the left gluteal region. Primary amputation was probably performed in the humerus.
Private P. H. T., "K," 34th Indiana, 27: hospital-steamer "Crescent City" fired into from the Arkansas shore, near Island 82, Mississippi river, 27th June; died, 29th June, 1863.
Contributed by Surgeon John T. Hodgen, U. S. Vols.

488. The bones of the left forearm. The ulna has been fractured in the lowest third and a partial excision performed.
d. 10. The history, which is obscure, represents an amputation in the upper third of the humerus to have been performed on the field.

Private N. N. C., "E," 7th New York Heavy Artillery, 16: Petersburg, 18th June; amputated by Dr. A. Garcelon; admitted hospital, Washington, 28th June; died, 20th July, 1864.

Contributed by the operator.

See class **VIII.** A. A. c.

For other illustrations, see 2752, **VII.** A. B. f. 24; 368, **VII.** A. B. f. 103; 3116, **VIII.** A. B. b. 6; 1329, **VIII.** A. B. f. 4.

B. Secondary Conditions.

a. Contusions and partial fractures.
b. Complete fractures.
c. Excisions.
d. Amputated fractures.
e. Other operations.
f. Stumps.
g. Sequestra.

a. Contusions and Partial Fractures.

298. A wet preparation of the bones of the right forearm and interosseous membrane. The ulna is perfectly normal.
a. 1. The inner border of the radius in the lowest third presents marks of circumscribed caries, both anteriorly and posteriorly, with thickening of the adjacent membrane, the probable result of gunshot contusion. Neither bone has been fractured, nor has any resection been performed. The specimen is chiefly interesting in being proof of the incorrectness of the statement that the forearm of the subject was so disabled that he could not commit physical violence with it.

Captain H. W. (Rebel): hanged, Washington, 10th November, 1865.

Contributed by Assistant Surgeons W. Thomson and H. Allen, U. S. Army.

See 300, **III.** B. A. a. 1; 299, **XIX.** B. A. a. 1; 301, **XXII.** B. A. c. 1; 302, **XXII.** B. A. c. 3.

1387. The bones of the left forearm with a conoidal carbine ball attached. The missile entered two inches above the
a. 2. wrist and was extracted, two weeks afterward, just below the elbow on the external aspect of the arm. Both bones are somewhat roughened on their adjoining faces by the superficial necrosis which has followed their contusion and by the dissection of periosteum by pus. The bullet is somewhat grooved.

Private A. C., "C," 8th Illinois Cavalry, 27: Upperville, Va., 21st June; admitted hospital, Washington, 23d June; amputated for secondary hæmorrhage by Acting Assistant Surgeon McCoy, 9th July; died, 11th July, 1863.

Contributed by the operator.

See 1386, **XVIII. II.** A. B. c. 2.

See class **XXVII.** B. B. d.

3674. The bones of the left forearm, necrosed in their greatest extent. The radius was partially fractured in its lowest
a. 3. third, and the ulna was probably contused. The lower portions of the specimen, which are not necrosed, are discolored superficially, as if in the treatment. (The cause of the discoloration is obscure.)

Private J. C. T., "B," 17th Pennsylvania Cavalry: Trevillian Station, Va., 2d June; admitted hospital, Philadelphia, 29th; wrist disarticulated for gangrene; arm amputated in the lowest third by Acting Assistant Surgeon M. K. Know, 20th September; died from pyæmia, 17th October, 1864.

Contributed by Surgeon Lewis Taylor, U. S. Army.

See class **IX.** A. B. e.

1865. Four and a half inches of the shaft of the ulna, showing a consolidated gunshot fracture. The bone was not
a. 4. broken in its entire thickness, a splinter one-fourth of an inch remaining intact. A fragment of about the same diameter and a little more than an inch in length has been fixed by new bone parallel with it. Other small fragments have been consolidated above and below it.

Contributed by Acting Assistant Surgeon J. Leidy.

For other illustrations, see 2017, **VII.** A. B. c. 3.

b. Complete Fractures.

923. The bones of the left forearm. The radius is shattered in the lowest fourth of the shaft, as if by a musket ball.
b. 1. Amputation was performed in the arm. The bone at the seat of fracture shows traces of treatment for gangrene.

Contributed by Assistant Surgeon C. Wagner, U. S. Army.

4186. The upper halves of the bones of the left forearm. The radius is transversely fractured at its neck; a longitudinal
b. 2. fracture extends one and a half inches down the shaft, from which, on the inner surface, one-third of the circumference for the same distance is wanting.

Corporal A. L., "E," 124th New York, 20: Hatcher's Run, 1st April; admitted hospital, Washington, 5th; died from exhaustion after secondary hæmorrhage, 16th April, 1865.

Contributed by Assistant Surgeon W. F. Norris, U. S. Army.

3889. The bones of the right forearm, with the ulna comminuted in the lowest third. The lower extremity is necrosed,
b. 3. this condition extending superficially up two-thirds of the shaft.

Private S. McC., "F," 1st U. S. Cavalry: Funkstown, 8th July; admitted hospital, Frederick, 13th July; died from pyæmia, 10th August, 1863.

Contributed by Acting Assistant Surgeon W. S. Adams.

1876. The left ulna, obliquely fractured in the lowest third with some comminution. The extremities of the bone are
b. 4. necrosed.

Private N. H., "I," 24th Michigan, 23: admitted hospital, Philadelphia, 9th July; died from pleuro-pneumonia, 5th August, 1863.

Contributed by Acting Assistant Surgeon J. Leidy.

879. A dried ligamentous preparation of the bones of the right forearm. The ulna is nearly transversely fractured in
b. 5. the middle third. The lower extremity is necrosed one-fourth of an inch and the upper for about one inch. Bordering these portions are slight new ossific deposits.

Contributed by Acting Assistant Surgeon J. Leidy.

3116. The upper halves of the bones of the left forearm, fractured by a shell, with comminution at the junction of the
b. 6. middle thirds, and primarily amputated, apparently in the humerus. The point of interest in this specimen, which has been mounted upside down for convenience of exhibition, is an old consolidated gunshot fracture of the radius in the middle third.

First Lieutenant J. S., "C," 88th New York: Wilderness, 7th May, 1864; amputated by Surgeon Peter Emmet Hubon, 28th Massachusetts; died in twenty-four hours.

Contributed by the operator.

See class **VIII.** A. a. d.

1341. The right radius, nineteen days after fracture in the middle third. A few necrosed spiculæ are entangled in the
b. 7. callus that was thrown out. Death resulted from pleurisy following a flesh wound over the ninth rib caused by the same bullet.

Private M. P., "A," 33d New York, 30: Chancellorsville, 3d May; admitted hospital, Washington, 8th; died, 22d May, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

3420. The upper halves of the bones of the left forearm. There is an ununited fracture in the upper third of the ulna,
b. 8. whose extremities are necrosed.

Private M. K., "D," 65th New York, 36: admitted hospital, with fractured neck of the femur, Baltimore, 24th October; died from pyæmia, 1st November, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles.

See 3419, **XII.** A. b. 30.

2. The bones of the right forearm. The radius is fractured, with loss of substance for two inches in the middle
b. 9. third. The fractured extremities are necrosed, and a slight ossific deposit exists in the lower border. The upper extremity is longitudinally fractured for two inches.

Private W., company and regiment unknown: Williamsburg, 5th May, 1862; died, Washington.

Contributed by Assistant Surgeon J. S. Billings, U. S. Army.

1835. The bones of the right forearm. The ulna is fractured, with the loss of several inches in the middle third, and the
b. 10. extremities are necrosed, above which a slight fringe of callus exists. The face of the radius adjoining the fracture is necrosed and partly absorbed.

Received after Gettysburg.

3839. The right ulna, showing an old compound fracture in the middle third. A fair amount of callus was thrown
b. 11. out, but no consolidation has occurred. Ligamentous union, which existed, has been accidentally destroyed in the preparation. There is no history of this fracture.

Private G. McL., "B," 23d Illinois, 41: admitted hospital for chronic inflammation of the knee, Frederick, 2d November; died from pneumonia, 15th December, 1864.

Contributed by Acting Assistant Surgeon E. Ould.

1252. The upper half of the right ulna and superior extremity of the radius, and the lowest third of the humerus. A
b. 12. battered conoidal ball, which has passed through the radius at the neck and shattered it, is lodged in the ulna just below the coronoid process. The ulna presents a longitudinal fracture the entire length of the specimen.

Private D. O'L., "K," 15th New Jersey: Chancellorsville, 3d May; admitted hospital, Washington, 8th; died exhausted, 11th May, 1863.

Contributed by Assistant Surgeon W. Thompson, U. S. Army.

See class **XXVII.** B. B. d.

1463. The right radius, showing a united but not healed fracture of the lowest third. The broken bone is firmly held
b. 13. together, but the greater portion of the upper fragment is a sequestrum, around which a fair deposit of ossific matter occurred.

Contributed by Surgeon Thos. R. Crosby, U. S. Vols.

859. Two and a half inches of the lower extremity of the left ulna, exhibiting a nearly consolidated fracture. The
b. 14. union is partially ligamentous and partially osseous. Several fragments of necrosed bone are entangled, which it was proposed to remove, but the subject died under chloroform.

Wounded, Fredericksburg, 13th December, 1862: died, Washington, 25th January, 1863.

Contributed by Surgeon I. Moses, U. S. Vols.

4. The lower portions of the bones of the right arm. The radius presents an irregularly united fracture of the
b. 15. lowest third. The bone has been shattered for two inches: a fair osseous deposit has occurred, but actual union has obtained only for a volume of one-fourth the normal size.

Private D. S., "A," 1st Kansas Colored: radius fractured and wrist dislocated, Poison Springs, Ark., 10th April; admitted hospital, Little Rock, 4th May, 1864; recovered sufficiently to work in the cook-house; died from general erysipelas, 3d April, 1865.

Contributed by Surgeon Joseph R. Smith, U. S. Army.

See class **XXIII.** A. A.

For other illustrations, see 4165, **VI.** A. B. d. 20.

C. EXCISIONS.

619. Nearly one inch of the shaft of the radius, excised.
c. 1. Contributed by Assistant Surgeon C. C. Lee, U. S. Army.

2297. Eleven fragments from the middle third of the right radius, removed by excision after fracture by a conoidal ball.
c. 2. Private W. M. B., "I," 20th Maine, 24: Wilderness, 5th May; admitted hospital, Washington, 11th May; furloughed, 18th July, 1864.

Contributed by Surgeon O. A. Judson, U. S. Vols.

1880. Twelve fragments of necrosed bone, removed and sawn from the right radius.
c. 3. Private J. B. R., "E," 48th New York: Fort Wagner, and admitted hospital, Beaufort, S. C., 19th July; specimen removed by Surgeon D. Merritt, 55th Pennsylvania, 14th August; discharged, 11th December, 1863.

Contributed by the operator.

4284. Ten fragments, representing two and a half inches of the shaft of the right radius after fracture by a conoidal ball.
c. 4. Private D. T., "I," 95th New York: South Side R. R., 31st March; excised by Surgeon G. L. Pancoast, U. S. Vols., Washington, 12th April, 1865. Recovered.

Contributed by the operator.

3614. An inch and one-fourth of the shaft, together with a spicula of more than an inch, excised from the upper third of
c. 5. the right ulna for secondary hæmorrhage. The inner border is necrosed.

Sergeant D. B. C., "H," 118th Pennsylvania: Petersburg, 1st July; admitted hospital, Philadelphia, 19th; excised by Acting Assistant Surgeon W. P. Moon, 22d July, 1864. Recovered.

Contributed by Surgeon Joseph Hopkinson, U. S. Vols.

2734. Nearly three inches of the lower portion of the radius, comminuted and excised.
c. 6. Contributor and history unknown.

2601. Eleven fragments of the left radius, representing three inches of the lower extremity partially necrosed.
c. 7. Captain P. H. P., "E," 74th New York: Gettysburg, 2d July; excised by Acting Assistant Surgeon McLean, Philadelphia, 6th August, 1863. Recovered.

Contributed by the operator.

2296. Four pieces of bone, representing three inches of the left ulna, excised. A conoidal ball, exceedingly battered,
c. 8. distorted and grooved, is mounted with the specimen.

Sergeant P. W., "K," 28th Massachusetts: Spottsylvania, 12th May; admitted hospital, Washington, 14th; died from pyæmia, 28th May, 1864.

Contributed by Surgeon O. A. Judson, U. S. Vols.

See class **XXVII.** B. B. d.

2300. Seven fragments of bone, excised from the right forearm and representing about three inches.
c. 9. Private T. W. G., "I," 11th Pennsylvania Reserves, 23: Wilderness, 5th May; admitted hospital, Washington, and excised; returned to duty, 26th July, 1864.

Contributed by Surgeon O. A. Judson, U. S. Vols.

338. Three inches of the shaft of the ulna, excised. The specimen, by several fractures, is divided longitudinally
c. 10. into three fragments, which are necrosed on the borders of the lines of solution, but over their greater surface present friable periosteal deposits.

Private R. R., "A," 105th Ohio: Perryville, Ky., 8th October; admitted hospital, New Albany, Ind., 13th; excised for obstinate hæmorrhage by Surgeon Wm. Varian, U. S. Vols., 22d October, 1862. Recovered.

Contributed by the operator.

373. Fragments representing three and a half inches of the shaft of the ulna, removed by excision. Three minute
c. 11. fragments of lead are mounted with the specimen.

Contributed by Surgeon Meredith Clymer, U. S. Vols.

See class **XXVII.** B. B. d.

4285. Seven fragments, representing four inches, excised from the middle third of the left ulna after fracture by a
c. 12. conoidal ball.

Private J. M., "C," 94th New York: South Side R. R, 31st March; excised by Surgeon G. L. Pancoast, U. S. Vols., 14th April, 1865. Recovered.

Contributed by the operator.

2320. Eighteen fragments, representing about two and a half inches of the ulna, removed by excision after comminution.
c. 13. Contributed by Surgeon N. R. Mosely, U. S. Vols.

2480. One and a half inches of the right ulna, excised for fracture with little comminution in the middle third.
c. 14. Private S. P., "K," 122d Ohio: Spottsylvania, 12th May; admitted hospital, Washington, 21st; excised, 24th May; deserted, 30th August, 1864.

Contributed by Surgeon G. L. Pancoast, U. S. Vols.

3666. The bones of the left forearm. An inch and three fourths has been excised from the middle third. The extrem-
c. 15. ities are necrosed as well as the adjoining surface of the radius. Beyond the necrosis are slight, friable, periosteal deposits.

Private J. R., "A," 43d U. S. Colored Troops, 19: Petersburg, 30th July; admitted hospital, Philadelphia, 18th August; excised, 19th; arm amputated in the middle third by Acting Assistant Surgeon W. W. Sharpley, 23d; died from exhaustion after secondary hæmorrhage, 29th August, 1864.

Contributed by the operator.

See class **VIII.** A. B. d.

3497. The bones of the right forearm, from whose radius two inches has been removed. The upper extremity is carious.
c. 16. Private D. H., "B," 94th Ohio, 34: Resaca, Ga., 14th May; admitted hospital, Nashville, 27th; radial artery ligated and excision performed for secondary hæmorrhage, 17th June; amputated in the arm for secondary hæmorrhage, 24th June; died, 2d July, 1864.

Contributed by Acting Assistant Surgeon H. C. May.

See class **VIII.** A. B. d.

3412. Nearly three inches of the shaft of the radius, excised.
c. 17. Private J. S., "D," 155th Pennsylvania, 17: Petersburg, 27th October; admitted hospital, Washington, 30th October; excised by Surgeon N. R. Mosely, U. S. Vols., 2d November; died exhausted, 6th November, 1864.

Contributed by the operator.

2508. Two and a half inches of the shaft of the radius, shattered and excised. The specimen shows a loss of substance
c. 18. corresponding to the calibre of the bullet.

Private R. J., "H," 6th New York Heavy Artillery, 18: admitted hospital, Washington, 20th May; excised by Surgeon N. R. Mosely, U. S. Vols., 2d June; died, 19th June, 1864.

Contributed by the operator.

1857. The bones of the right arm, after an excision of about one inch of the radius and three inches of the ulna. There
c. 19. was no attempt at repair, and the excised extremities are necrosed. Amputation above the elbow was ultimately performed.

Contributor and history unknown.

See class **VIII.** A. B. d.

3690. Three inches of the lowest third of the ulna, excised after ligamentous union and caries following fracture.
c. 20. Private J. C., "I," 6th Wisconsin, 20: excised by Surgeon H. Culbertson, U. S. Vols., 4th August, 1864. Recovered with good use of forearm.

Contributed by the operator.

2206. The bones of the left forearm, after primary excision of three inches from the shaft of each bone in the upper
c. 21. third. No union has occurred and the extremities are carious.

Private J. G. F., "E," 103d Illinois, 27: Missionary Ridge, 25th November, 1863; excision was performed the same day; admitted hospital, Nashville, 31st January; amputated above the elbow, 23d March, 1864.

Contributed by Medical Cadet C. H. Fisher.

See classes **VIII.** A. A. c.; **VIII.** A. B. d.

3157. Three portions of bone, one and three-fourths, two and a half and three inches, respectively, evidently excised
c. 22. from the shafts of the forearm. A battered conoidal ball is attached.

Contributed by Surgeon J. J. Comfort, 1st Pennsylvania.

See class **XXVII.** B. B. d.

2985. The upper portion of the right ulna, from which an excision has been made. Gangrene followed, for which
c. 23. amputation in the arm was performed.

Corporal W. Van N., "E," 8th Michigan: Petersburg, 18th June, 1864; amputated by Assistant Surgeon M. J. Asch, U. S. Army.

Contributed by the operator.

See class **VIII.** A. B. d.

3085. The bones of the right forearm with the middle third of the radius, excised for fracture by a conoidal ball, which
c. 24. also shattered the left ulna. No reparative action exists at the extremities. The missile had passed through the corner of a house before inflicting the wound.

Private F. M. H., "B," 30th North Carolina, (Rebel,) 22: before Washington, 12th; excised on the field by Surgeon Briggs (Rebel); admitted hospital, 14th July; died after secondary hæmorrhage, 17th August, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

See 3086, **VIII.** A. B. c. 35.

See class **VIII.** A. A. c.

1868. The left radius, after excision of two and a half inches from the upper extremity for an incomplete fracture of the
c. 25. head. The entire shaft nearly to the carpal articulation is necrosed, about the lower portion of which a meagre involucrum is found.

Private S. S. G., "K," 100th Pennsylvania: Second Bull Run, 29th August; excised by Acting Assistant Surgeon W. F. Atlee, Philadelphia, 26th September; amputated in the middle third of the humerus after diffusive erysipelas, 11th November, 1863. Recovered.

Contributed by Acting Assistant Surgeon —— Hickman.

See classes **VIII.** A. B. d.; **XXIII.** A. A.

1189. The bones of the right forearm. Three and a half inches from the middle of the radius has been excised after
c. 26. comminuted fracture, and the majority of the fragments are mounted with the specimen. The excised extremities are necrosed, and periosteal disturbance is observable in the ulna opposite the seat of injury. The arm was subsequently amputated.

Contributed by Surgeon C. Allen, U. S. Vols.

See 1190, **XVIII. II.** A. B. a. 8.

See class **VIII.** A. B. d.

371. Three and a half inches of the upper third of the shaft of the right radius, comminuted and apparently excised.
c. 27. Contributed by Surgeon Wm. Varian, U. S. Vols.

69. Three and a half inches of the shaft of the right ulna, excised for comminution.
c. 28. Private —— S., —— New York: Second Bull Run, 30th August; excised by Surgeon T. E. Mitchell, 1st Maryland, Washington, 14th September, 1862.

Contributed by the operator.

1089. Four inches of the shaft of the right radius, excised for fracture with much loss of substance. Two flattened
c. 29. pieces of lead, as though a distorted ball and a buckshot, are mounted with the specimen.

Sergeant ——: Chancellorsville, 2d May; admitted hospital, Washington, 7th; excised, 10th: amputated below the elbow for secondary hæmorrhage by Surgeon Henry Bryant, U. S. Vols., 13th May, 1863. Recovered.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

See classes **VIII.** A. B. d.; **XXVII.** B. B. d.

2402. Four inches of the shaft of the radius, shattered and apparently excised.
c. 30. Contributed by Surgeon J. H. Brinton, U. S. Vols.

2810. The bones of the left forearm. Three and a half inches from the lowest third of the ulna appears to have been
c. 31. excised. The extremity of the lower fragment is carious, and the upper portion of the shaft is necrosed nearly to the olecranon. A small portion of the inner border of the radius in the middle third has been absorbed, as if after contusion.

Captain J. S. McC., "H," 126th Ohio, 35: Spottsylvania, 10th May; probably excised in the field; admitted hospital, Washington, 17th May; amputated in the lowest third of the arm by Surgeon N. R. Mosely, U. S. Vols., 6th July, 1864.

Contributed by the operator.

See class **VIII.** A. B. d.

2510. Portions of the bones of the left forearm, from which a part of the upper and middle thirds of the radius has
c. 32. been excised. The upper extremity of the lower fragment is necrosed for half an inch, and the ulna is superficially necrosed in the middle third.

Private G. W. W., "I," 57th Massachusetts: probably Spottsylvania, 19th May; admitted hospital, Washington, 22d; removed by Acting Assistant Surgeon W. H. Ensign, 23d May; died from pyæmia, 11th June, 1864.

Contributed by Surgeon N. R. Mosely, U. S. Vols.

See 2350, **VIII.** A. B. e. 7.

823. Five and a half inches of the shaft of the ulna, excised from the two lower thirds. The ball, after escaping
c. 33. from the forearm, inflicted a flesh wound above the elbow.

Private J. L., 28th Pennsylvania, 28: Antietam, 17th September; admitted hospital, Frederick, 24th; excised, 28th September, 1862. Recovered.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

3777. The bones of the right forearm. The lower half of the ulna is wanting, as though excised. At the upper
c. 34. extremity of the fracture a copious, irregular deposit of spongy callus has occurred.

Contributor and history unknown.

3086. The bones of the left forearm, from which the lower half of the ulna has been primarily excised for fracture by
c. 35. a conoidal ball. The right radius was broken in the middle third by the same bullet. The extremity of the bone shows a slight ring of necrosis and no attempt whatever at repair.

Private F. M. H., "B," 30th North Carolina, (Rebel,) 22: before Washington, 12th July; excised on the field by Surgeon Briggs (Rebel); admitted hospital, 14th July; died after secondary hæmorrhage, 17th August, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

See 3085, **VIII.** A. B. c. 24.

See class **VIII.** A. A. c.

3712. A wet preparation of five inches of the lower extremity of the ulna, apparently excised for fracture with liga-
c. 36. mentous union.

Contributed by Assistant Surgeon C. Wagner, U. S. Army.

See class **IX.** A. B. d.

949. A wet preparation of two inches of the shaft of the radius, excised for a false-joint after fracture.
c. 37. Contributed by Surgeon Meredith Clymer, U. S. Vols.

For other illustrations, see 904, **VIII.** A. B. d. 7; 487, **IX.** A. B. f. 27.

d. Amputated Fractures.

2571. The lower thirds of the bones of the left forearm, apparently amputated. About two inches of the ulna in the
d. 1. lowest third is wanting, and the radius directly opposite is fractured without displacement, as though by the same missile nearly spent.

Contributor and history unknown.

711. A section of the bones of the left forearm, showing a fracture of each, for which amputation was performed.
d. 2. The ulna is transversely fractured with the extremities necrosed. The radius is broken into two small fragments, besides suffering a transverse fracture.

B. F. S., Civilian attaché: Fredericksburg, 13th December; admitted hospital, Washington, 26th; amputated below the elbow by Surgeon Peter Pineo, U. S. Vols., 29th December, 1862. Recovered.

Contributed by the operator.

1984. The lower thirds of the bones of the left forearm, amputated after fracture in the lowest thirds. A conoidal
d. 3. ball perforated the radius transversely in its lowest third and, passing obliquely upward, chipped the anterior face of the ulna.

Private S. S., "C," 20th Massachusetts, 19: admitted hospital, Washington, 28th August; amputated by Acting Assistant Surgeon W. H. Ensign, 1st September; died exhausted, 18th September, 1864.

Contributed by the operator.

1350. The bones of the left forearm, after amputation below the elbow. The ulna is fractured with loss of substance
d. 4. at the junction of the lower thirds, and the extremities are carious.

Private A. R. G., "H," 69th Indiana: Vicksburg, 1st May; amputated, Evansville, Ind., 20th June; died from pyæmia, 25th June, 1863.

Contributed by Surgeon G. Grant, U. S. Vols.

3613. The lower thirds of the bones of the left forearm. The radius is fractured and the ulna contused in the
d. 5. lowest thirds. Both bones are necrosed at the places of injury.

Private T. C., "A," 69th New York, 32: admitted hospital, Philadelphia, 11th June; amputated by Acting Assistant Surgeon S. D. Marshall, 11th July, 1864; deserted, 27th April, 1865.

Contributed by the operator.

3325. The lower halves of the bones of the left forearm, amputated for comminuted fracture in the lowest thirds.
d. 6. Private D. R., "B," 4th Pennsylvania Cavalry, 25: Charles City C. H., Va., 24th June; admitted hospital, Alexandria, 28th June; amputated by Surgeon Charles Page, U. S. Army, 1st July; discharged the service, 28th November, 1864.

Contributed by Acting Assistant Surgeon S. D. Twining.

904. The lower halves of the bones of the left forearm, apparently amputated after excision of the lowest two inches
d. 7. of the radius.

Contributor and history unknown.

See class **VIII.** A. B. c.

880. The lower halves of the bones of the right forearm. Each bone was fractured in its lowest third, the radius
d. 8. being comminuted for more than an inch, and all of the fractured portions necrosed. Above the lines of necrosis slight osseous deposits were made.

——— ———: Antietam, 17th September; amputated for secondary hæmorrhage by Assistant Surgeon E. de W. Breneman, U. S. Army, Philadelphia, 1862. Recovered.

Contributed by the operator.

2708. The lower thirds of the right radius and ulna, amputated for comminution of both bones in their lowest
d. 9. thirds.

Private B. H., "G," 8th U. S. Colored Troops, 34: shell wound, Olustee, Fla., 19th February; admitted hospital and amputated by Acting Assistant Surgeon H. K. Neff, Beaufort, S. C., 22d February; doing well, 14th May, 1864.

Contributed by the operator.

2016. The lower halves of the bones of the right forearm, after amputation. Both bones were fractured above the
d. 10. wrist by a fragment of shell. The fractured extremities are necrosed, and beyond them is a light osseous deposit.

Private L. S., "F," 107th New York, 19: Alton, Ga., May; admitted hospital, Chattanooga, 2d June; amputated and transferred to Nashville; furloughed, 3d July, 1864.

Contributed by Assistant Surgeon C. C. Byrne, U. S. Army.

3326. The bones of the right forearm, amputated at the junction of the upper thirds. The ulna presents three nearly
d. 11. transverse fractures, one and a half inches apart, connected by longitudinal comminution. About three inches of the ulna is missing.

Sergeant A. A. B., "F," 6th Ohio Cavalry, 24: Jones' Ferry, Va., 24th June; admitted hospital, Alexandria, 28th June; amputated by Surgeon Charles Page, U. S. Army, 4th July; died of pyæmia, 15th July, 1864.

Contributed by Acting Assistant Surgeon S. D. Twining.

3297. The lower two-thirds of the bones of the left forearm, from the radius, of which three inches were excised
d. 12. primarily.

Private J. C., "G," 142d Pennsylvania, 20: wounded and excised, Wilderness, 11th May; admitted hospital, Alexandria, 16th; amputated in the upper third, 18th; died, 27th May, 1864.

Contributed by Surgeon D. P. Smith, U. S. Vols.

See class **VIII.** A. B. c.

2700. The bones of the right forearm, amputated below the elbow for fracture with comminution in the middle third.
d. 13. Corporal J. S., "K," 7th New York Heavy Artillery, 20: admitted hospital and amputated by Acting Assistant Surgeon W. H. Ensign, Washington, 24th June; brachial ligated, 30th June; died exhausted, 8th July, 1864.

Contributed by the operator.

See class **XVIII. II.** A. B. b.

2586. The two lower thirds of the bones of the right forearm. The bones were each shattered for two inches at the
d. 14. junction of the lower thirds, and the extremities are necrosed. The ulnar nerve was also wounded.

Corporal P. N., "K," 139th Pennsylvania: Wilderness, 5th May; admitted hospital, Washington, 12th May; amputated by Acting Assistant Surgeon D. P. Wolhaupter for incipient tetanus, 11th June, 1864. Recovered.

Contributed by Surgeon G. L. Pancoast, U. S. Vols.

272. The two lower thirds of the bones of the left forearm, showing a partially united fracture of the middle third of
d. 15. the radius. Several of the entangled fragments are necrosed, and the new bone on the outer surface is wanting.

Corporal L. B., "D," 132d Pennsylvania: probably Antietam, 17th September; admitted hospital, Philadelphia, 2d October; amputated, 28th October; brachial ligated, 4th November; died after secondary hæmorrhage, 15th November, 1862.

Contributed by Surgeon J. L. Leconte, U. S. Vols.

See class **XVIII. II.** A. B. b.

645. The two lower thirds of the right radius, apparently amputated for fracture from perforation in the lowest third.
d. 16. At the place of fracture the specimen is necrosed, but above and below it is sheathed with a thin coating of callus.

Contributed by Assistant Surgeon S. A. Storrow, U. S. Army.

2598. The left radius, shattered and amputated in the lowest third. Callus has been thrown out at the point of fracture,
d. 17. retaining a few fragments. The amputated portion is necrosed as far as the tubercle.

Private A. P., 9th Massachusetts Battery: Gettysburg, 2d July; amputated by Assistant Surgeon C. R. Greenleaf, U. S. Army, Philadelphia, 30th August, 1863. Died from pyæmia.

Contributed by the operator.

See class **VIII.** A. B. f.

539. The upper portions of the bones of the right forearm and the lowest fourth of the humerus. An oblique fracture
d. 18. passes below and involves the tubercle of the radius, against which a round bullet is lodged. Amputated above the condyles by Wm. A. Hammond, M. D.

Contributed by the operator.

See class **XXVII.** B. B. d.

921. The bones of the right forearm, fractured, with the loss of two inches from each, at the junction of the upper
d. 19. thirds and amputated in the humerus.

Contributed by Assistant Surgeon C. Wagner, U. S. Army.

2772. The left radius, fractured, at the junction of the upper thirds, by a conoidal ball. The comminution is not extensive.
d. 20. Private J. G., "C," 42d New York, 21: Gettysburg, 2d July; admitted hospital, Philadelphia, 9th; amputated just above the elbow for secondary hæmorrhage, 11th July; transferred to Invalid Corps, well, 11th September, 1863.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

1588. The upper portions of the bones of the right forearm, fractured in their upper thirds. A ball has passed between
d. 21. the two, fracturing the radius in an irregularly transverse manner and chipping off two inches from the posterior surface of the ulna. A longitudinal fissure extends one and a half inches on the posterior surface of the radius, and the borders of the fracture are necrosed.

Private T. M., "G," 91st New York, 21: South Side R. R., Va., 30th March; admitted hospital, Philadelphia, 7th April; amputated for secondary hæmorrhage in the middle third of the humerus, 18th April, 1865. Recovered.

Contributed by Acting Assistant Surgeon W. Scott Hendrie.

156. The right radius, shattered in the upper third of the shaft, with a flattened buckshot attached. It is probable
d. 22. that another missile at short range assisted in the fracture. The arm was probably amputated.

Contributed by Surgeon J. C. Dorr, U. S. Vols.

See class **XXVII.** B. B. d.

2769. The bones of the left forearm. The ulna is fractured with comminution in the upper third. There is no attempt
d. 23. at repair noticeable.

Private R H., "I," 11th Massachusetts: Second Bull Run, 29th August; admitted hospital, Philadelphia, 3d September; amputated in the arm for secondary hæmorrhage by Acting Assistant Surgeon S. D. Gross, 16th; died, 29th September, 1862.

Contributed by Surgeon J. J. Reese, U. S. Vols.

3717. The right ulna, obliquely fractured with comminution at the junction of the upper thirds. The entire shaft is
d. 24. necrosed.

Private P. C., "I," 97th Pennsylvania, 24: Deep Bottom, Va., 16th August; arm amputated, Beverly, N. J., 15th September, 1864. Recovered.

Contributed by Assistant Surgeon C. Wagner, U. S. Army.

2780. The upper halves of the bones of the left forearm. The radius is comminuted with loss of substance in the upper
d. 25. third, the extremities being necrosed. The ulna immediately adjoining is slightly fissured and superficially necrosed. An extensive but thin periosteal deposit exists on both bones.

Private W. H. A., "K," 4th Maine, 24: Spottsylvania, 12th May; admitted hospital, Philadelphia, 20th; amputated for secondary hæmorrhage, 30th May; died, 17th June, 1864.

Contributed by Acting Assistant Surgeon M. J. Grier.

4138. The upper two-thirds of the bones of the forearm. The radius is fractured transversely in the upper third, with
d. 26. longitudinal splintering. The injury was supposed to involve the joint at the time of the operation.

Private J. R., "E," 41st U. S. Colored Troops: Petersburg, 31st March; amputated in the lowest third of the humerus by Surgeon W. O. McDonald, U. S. Vols., City Point, 1st April, 1865.

Contributed by the operator.

2935. The bones of the right forearm. The ulna is shattered at the junction of the lower thirds, with longitudinal
d. 27. splintering for three inches.

Private W. D., "G," 82d New York, 54: wounded, 18th May; admitted hospital, Washington, 24th May; amputated in the lowest third of the arm by Acting Assistant Surgeon Allen, 3d June; died, 26th June, 1864.

Contributed by Surgeon O. A. Judson, U. S. Vols.

166. The upper halves of the bones of the right forearm and the lowest third of the humerus, after amputation. The
d. 28. ulna was shattered throughout the upper third of the shaft and the fragments are necrosed.

Private G. S. H., "A," 12th New York: Second Bull Run, 30th August; admitted hospital, Washington, 31st August; amputated, 2d October; died from pyæmia, 8th October, 1862.

Contributed by Assistant Surgeon C. A. McCall, U. S. Army.

3187. Portions of the shafts of the bones of the left forearm. The radius has been shattered at the junction of the upper
d. 29. thirds with the loss of two inches of substance. The fractured extremities are carious

Private S. B. H., "I," 77th New York, 37: probably Cold Harbor, 3d June; admitted hospital, Baltimore, 6th June; amputated in the middle third of the arm for gangrene by Acting Assistant Surgeon John Neff, 6th August; transferred North, 20th September, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

See class **XXIII.** A. B.

3365. The bones of the left forearm, transversely fractured with comminution in the upper thirds.
d. 30. Private J. F. S., "K," 33d Ohio, 30: Resaca, Ga., 16th May; admitted hospital, Nashville, 21st; arm amputated in the lowest third, 25th; died from pyæmia, 31st May, 1864.

Contributed by Surgeon R. L. Stanford, U. S. Vols.

2753. The bones of the left forearm. The radius is fractured in the lowest third with the loss of two inches. The
d. 31. extremities of the fracture are necrosed.

Private J. B., "K," 20th Indiana, 25: Gettysburg, 3d July; admitted hospital, Philadelphia, 5th July; attacked with diphtheria after secondary hæmorrhage; amputated in the arm by Acting Assistant Surgeon Morton, 5th September, 1863. Died the next day.

Contributed by Acting Assistant Surgeon J. Roberts.

1997. The bones of the right elbow. About two inches of each of the bones of the forearm is attached. They appear
d. 32. to have been shattered in the upper third and an unsuccessful attempt at repair to have occurred. The arm was probably then amputated.

Contributor and history unknown.

3103. The upper portions of the bones of the left forearm, fractured with comminution and necrosed at the extremities.
d. 33. Private J. H. E., "E," 24th New York Cavalry, 45: Petersburg, 18th June; admitted hospital, Washington, 1st July; amputated in the upper third of the arm, 17th August; died, 22d August, 1864.

Contributed by Assistant Surgeon Philip C. Davis, U. S. Army.

2776. The bones of the right forearm. The ulna is fractured in its middle third by a conoidal ball which carried away
d. 34. nearly its whole diameter. There was no reparative effort, but superficial necrosis occupied portions of the shafts of both bones.

Private J. H. B., "H," 134th New York, 17: Gettysburg, 3d July; admitted hospital, Frederick, 9th July; amputated in the upper third of the arm for secondary hæmorrhage, 15th September; died from pyæmia, 24th September, 1863.

Contributed by Acting Assistant Surgeon Ed. A. Smith.

931. A portion of the left ulna, obliquely fractured without comminution in the upper third. The bone is much necrosed
d. 35. and obtains sparse ossific deposits. This fracture does not appear to have been suspected before amputation, which was made in the humerus for a fractured elbow.

Private P. McC., 140th Pennsylvania, 26: elbow fractured, Fredericksburg, 13th December; admitted hospital, Point Lookout, 16th December, 1862; amputated in the lowest third of humerus by Assistant Surgeon C. Wagner, U. S. Army, 1st January, 1863. Recovered.

Contributed by the operator.

See 653, **VII.** A. B. f. 68.

2073. The bones of the left forearm. The ulna was shattered at the junction of the upper thirds with the loss of three
d. 36. inches. Both of the fractured extremities are carious.

Private W. F. F., "E," 13th North Carolina (Rebel): Gettysburg, 1st July; amputated, Chester, Penna., 22d September, 1863. Recovered.

Contributed by Acting Assistant Surgeon J. A. Draper.

3677. The bones of the left forearm. The radius is fractured with the loss of two inches in the middle third. The
d. 37. fractured extremities are necrosed.

Corporal J. O'C., "D," 63d New York, 41: Cold Harbor, 3d June; admitted hospital, Philadelphia, 13th June; amputated for secondary hæmorrhage by Acting Assistant Surgeon Richard A. Cleemann, 11th July; died exhausted, 16th July, 1864.

Contributed by Surgeon Lewis Taylor, U. S. Army.

1874. The bones of the right forearm. The middle third has been shattered with comminution and loss of substance
d. 38. for three inches. The lower extremity has a small deposit of callus, but the upper fragment is necrosed.

Private H. A. F., "C," 12th New Hampshire: admitted hospital, Philadelphia, 12th August; died, 20th August, 1863.

Contributed by Acting Assistant Surgeon J. Leidy.

1841. The bones of the right forearm. The radius is transversely fractured in the lowest third, with short longitudinal
d. 39. fissures extending in both directions. The ulna has two independent nearly transverse fractures; one just above the lower extremity and one in the middle third. The missile is reported to have been a solid shot.

Private A. P. B., "F," 1st Massachusetts Cavalry, 29: wounded Bristoe Station; admitted hospital, Alexandria, 15th October; amputated middle third of the arm, 18th October; died from pyæmia, 21st November, 1863.

Contributed by Surgeon Edwin Bentley, U. S. Vols.

3627. The upper halves of the bones of the left forearm. The ulna was completely fractured and the radius contused
d. 40. in the upper thirds. The entire epiphyses are necrosed and the original shafts surrounded with involucra. No union has occurred in the ulna, but the upper fragment is anchylosed, by a moderate osseous deposit, with the radius.

Private F. W. K., "D," 99th Pennsylvania, 26: Wilderness, 5th May; amputated at the junction of the lower thirds of the arm by Acting Assistant Surgeon E. C. Bullard, Philadelphia, 31st August; died, 17th September, 1864.

Contributed by Surgeon Joseph Hopkinson, U. S. Vols.

3686. The bones of the left forearm, after amputation at the junction of the lower thirds of the humerus. Both bones
d. 41. appear to have been contused in their upper thirds. The entire shaft of the radius and nearly the whole of the ulna are necrosed and surrounded by extensive involucra.

Sergeant N. S., "C," 9th Veteran Reserve Corps, 28: before Washington, 11th July; admitted hospital, 12th July, 1864; amputated, 15th February, 1865. Recovered.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

See 3727, **VI.** A. B. g. 10.

2331. The lower half of the right radius, in two portions. The bone was fractured in its lowest third and a primary
d. 42. excision apparently performed.

Private J. M. B., "F," 57th Pennsylvania, 49: Wilderness, 5th May; admitted hospital, Washington, 11th; amputated in the middle third and died, 19th May, 1864.

Contributed by Assistant Surgeon J. C. McKee, U. S. Army.

1960. Three and a half inches of each of the bones of the forearm, apparently after amputation for a transverse fracture
d. 43. of the ulna in the lowest third.

Received after Gettysburg.

218. The bones of the left forearm, each fractured four inches in the upper third of the shaft.
d. 44. From a Rebel wounded at Williamsburg, 5th May, 1862, and successfully amputated in the arm, at Washington, twelve days afterward.

Contributed by Assistant Surgeon J. S. Billings, U. S. Army.

2794. The carpus and lowest thirds of the bones of the right forearm. Both bones have been comminuted by the
d. 45. oblique passage of a bullet, which struck the radius two inches above the articulation and emerged through the ulna just above the styloid process. Both fractures are consolidated with firmness, but not with accurate coaptation, necrosed fragments being retained in each.

Sergeant T. L., "E," 5th Michigan, 26: Gettysburg, 2d July; admitted hospital, Philadelphia, 13th July; amputated to avert threatened tetanus by Acting Assistant Surgeon A. Hewson, 25th August, 1863. Recovered.

Contributed by Acting Assistant Surgeon Wm. F. Keating.

667. Two portions of the bones of the forearm, shattered about the middle third. Fragments are irregularly reunited
d. 46. at the extremities, with small portions of necrosed bone nearly separated. There are slight fringes of callus above the lines of fracture.

Corporal J. A., "K," 154th New York: admitted hospital, Washington, 19th November; amputated above the elbow, 23d December, 1862; discharged the service, 25th February, 1863.

Contributed by Surgeon Thomas Antisell, U. S. Vols.

For other illustrations, see 2395, **V.** A. B. d. 14; 2473, **VI.** A. B. d. 33; 4166, **VII.** A. B. f. 39; 3666, **VIII.** A. B. c. 15; 3497, **VIII.** A. B. c. 16; 1857, **VIII.** A. B. c. 19; 2206, **VIII.** A. B. c. 21; 2985, **VIII.** A. B. c. 23; 1868, **VIII.** A. B. c. 25; 1189, **VIII.** A. B. c. 26; 1089, **VIII.** A. B. c. 29; 2810, **VIII.** A. B. c. 31.

e. Other Operations.

407. Four small fragments of necrosed bone, removed from the middle third of the radius after fracture by a conoidal
e. 1. ball. The specimens are from three-fourths to one and three-fourths inches in length.

Private J. C. R., "C," 26th New York: Antietam, 17th September; admitted hospital, Baltimore, 20th September; specimen removed by Surgeon C. W. Jones, U. S. Vols., 4th October, 1862. Recovered.

Contributed by the operator.

427. Ten small fragments of necrosed bone, removed from the ulna.
e. 2. Private J. W., "B," 11th Pennsylvania Reserve Corps, 19: left forearm, White Oak Swamp, Va, 30th June; admitted hospital, Baltimore, 25th July; fragments removed by operation, 20th August; amputated above the elbow, 14th September; discharged, well, 29th October, 1862.

Contributed by Surgeon A. B. Hasson, U. S. Army.

4144. Seven small fragments of bone, removed from the ulna after fracture.
e. 3. Private G. W. L., "H," 2d Pennsylvania: removed by Surgeon W. Lyons, 2d Pennsylvania.

Contributed by the operator.

4283. Six fragments, representing one and a half inches of the middle third of the left radius, removed after fracture by
e. 4. a conoidal ball.

Sergeant W. H. W., "D," 7th Wisconsin: Boydton Plank Road, Va., 31st March; removed by Surgeon G. L. Pancoast, U. S. Vols., Washington, 12th April, 1865. Recovered.

Contributed by the operator.

1756. Thirteen fragments of bone, representing two inches of the ulna, removed by operation. A minute portion of
e. 5. lead is attached.

Contributed by Surgeon I. Moses, U. S. Vols.

4286. Five fragments, representing two inches of the right ulna, removed after fracture of the middle third by a
e. 6. conoidal ball.

Private G. V., "B," 1st Connecticut: wounded, 6th April; removed by Surgeon G. L. Pancoast, U. S. Vols., Washington, 22d April, 1865. Recovered.

Contributed by the operator.

2350. Fragments representing about one inch of the shaft of the radius, removed by operation.
e. 7. Private G. W. W., "I," 57th Massachusetts: probably Spottsylvania, 19th May; admitted hospital, Washington, 22d; removed by Acting Assistant Surgeon W. H. Ensign, 23d May; died from pyæmia, 11th June, 1864.

Contributed by Surgeon N. R. Mosely, U. S. Vols.

See 2510, **VIII.** A. B. C. 32.

f. Stumps.

3160. The stump of the left forearm, after amputation in the middle third. The extremities show incipient necrosis.
f. 1. Private H. C. F., "H," 7th Michigan, 22: Deep Bottom, Va., 26th July; admitted hospital, Washington, 30th July; amputated, 15th August; died from pyæmia, 1st September, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

3541. The upper two-thirds of the bones of the left forearm, after death from pyæmia following amputation for fracture
f. 2. of metacarpus. The extremities are necrosed and no reparative effort has occurred. The bones were sawn longitudinally to examine the recent medullæ.

Private G. W. A., "C," 32d Massachusetts, 25: forearm amputated, 13th May; admitted hospital, Washington, 18th May; died from pyæmia, 3d June, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

3772. The stumps of the bones of the forearm, after amputation at the junction of the lower thirds. There has been no
f. 3. reparative action and the extremities are necrosed.

Contributor and history unknown.

1329. Three inches of the stumps of the left radius and ulna, amputated for caries of the extremities after a primary
f. 4. amputation near the wrist.

Private J. B., "F," 1st Rhode Island Artillery: wounded and amputated on the field, White Hall, N. C., 16th December, 1862; reamputated by Surgeon C. A. Cowgill, U. S. Vols., Newbern, N. C., 13th March, 1863; healed by the first intention.

Contributed by the operator.

See class **VIII.** A. A. d.

3071. The stump of the left forearm, after amputation in the middle third. The extremities are slightly rounded, but in
f. 5. both cases carious.

Private J. F., "K," 60th Ohio: wounded and amputated on the field, 29th May; died exhausted, Washington, 7th August, 1864.

Contributed by Acting Assistant Surgeon W. Guthrie Winder.

955. One and a half inches of the stump of the ulna, amputated. The specimen shows a small sequestrum still attached
f. 6. with a copious but spongy deposit on the superior surface. The extremity is carious.

Contributed by Surgeon Meredith Clymer, U. S. Vols.

3771. The stumps of the right radius and ulna, after amputation in the middle thirds. The extremities are carious and not
f. 7. rounded, but the borders of the sections have received moderate deposits of spongy callus.

Contributor and history unknown.

64. The upper thirds of the bones of the left forearm, seven and a half months after amputation. Each extremity is
f. 8. enlarged but carious, and superficial diseased action occupies nearly the whole of the shaft of the ulna.

Private J. N., "D," 16th Mississippi, (Rebel,) 38: admitted with amputated forearm, Washington, 24th August, 1864; amputated in the lowest third of the humerus by Acting Assistant Surgeon N. A. Robbins, 12th April, 1865. Died from pyæmia.

Contributed by Acting Assistant Surgeon J. P. Arthur.

3625. One and a half inches from the bones of the stump of the right forearm. Both are well rounded, but the new bone
f. 9. is spongy and in places carious.

Private S. S., "M," (?) 122d Pennsylvania, 18: accidental pistol wound, right hand, 6th April; admitted hospital, Philadelphia, 18th May; amputated junction lower thirds forearm, for gangrene, by Acting Assistant Surgeon W. P. Moon, 24th May; reamputated, 23d July; died exhausted, 9th August, 1864.

Contributed by Acting Assistant Surgeon F. W. Saunders.

See class **XXIII.** A. B.

4170. The stumps of the bones of the right forearm, nine months after amputation at the junction of the lowest thirds.
f. 10. The entire shaft of each bone is necrosed. To the radius a large but irregular involucrum has formed, which is deficient on the anterior surface. The ulnar involucrum is large, but wanting on the inner surface and at the extremity.

Corporal I. M., "B," 184th Pennsylvania, 39: second finger amputated, Cold Harbor, 5th June; flap amputation of forearm by Acting Assistant Surgeon J. G. F. Strawbridge, Chester, Penna., 30th June, 1864; circular amputation of arm at the lowest third by Acting Assistant Surgeon Geo. S. Stein, 9th April, 1865. Recovered.

Contributed by Brevet Lieutenant Colonel T. H. Bache, Surgeon, U. S. Vols.

See 2672, **XXI.** A. B. b. 13; 551, **XXIII.** A. B. 4.

For other illustrations, see 368, **VII.** A. b. f. 103; 2598, **VIII.** A. B. d. 17.

g. SEQUESTRA.

932. A crown-shaped sequestrum of three-fourths of an inch, from the stump of the right radius.
g. 1. Captain A. S., 68th New York: forearm fractured in the lowest third, Second Bull Run, 31st August; amputated by Surgeon A. B. Mott, U. S. Vols., September, 1862; specimen removed, 27th January; discharged the service, healed, March, 1863.

Contributed by Surgeon Charles L. Allen, U. S. Vols.

3621. A crown-shaped sequestrum of one inch, from the radius amputated in the upper third.
g. 2. Private C. P., "H," 13th New Hampshire: admitted hospital with lacerated flesh wound left forearm, Philadelphia, 21st June; amputated three inches below the elbow after gangrene by Acting Assistant Surgeon McGrath, 15th July; specimen removed, 28th August, 1864; discharged the service, 2d March, 1865.

Contributed by Acting Assistant Surgeon J. Brown Lopsley.

See class **XXIII.** A. B.

511. A heavy sequestrum, of nearly three inches, from the radius after amputation for fracture of the carpus.
g. 3. Private J. C. P., "E," 19th Maine, 43: Petersburg, 23d June; admitted hospital, Philadelphia, 30th June; amputated in the middle third for secondary hæmorrhage by Acting Assistant Surgeon Charles Styer, 14th July; sequestrum removed, 14th November, 1864; discharged the service, 26th May, 1865.

Contributed by the operator.

See 3660, **IX.** A. B. f. 32.

1780. Two sequestra, from the radius and ulna, two and a half and three inches in length, respectively.
g. 4. Contributed by Assistant Surgeon H. Allen, U. S. Army.

3194. Two sequestra, from the right radius and ulna, of three and four inches, respectively. The specimens represent
g. 5. the entire calibre of the bone.

Corporal H. C., "A," 5th New Jersey, 39: right middle metacarpal fractured, Petersburg, 23d June; admitted hospital, Philadelphia, 19th July; metacarpal amputated, 22d July; entire metacarpal necrosed and removed, 21st August; forearm amputated, 29th August; specimen removed, 22d October, 1864; discharged the service, 29th March, 1865.

Contributed by Acting Assistant Surgeon W. Scott Hendrie.

See class **X.** A. B. d.

3672. A sequestrum, six inches in length, removed from the radius three months after fracture in the lowest third. Its
g. 6. middle third occupies the totality of the bone, about one-third of the circumference being wanting at the extremities. There is an osseous deposit upon the middle of the specimen.

Private R. H., "I," 183d Pennsylvania: Cold Harbor, 3d June; admitted hospital, Philadelphia, 13th June; specimen removed, 3d September, 1864; discharged the service, 1st February, 1865.

Contributed by Acting Assistant Surgeon W. L. Wells.

B. Injuries not caused by Gunshot.

A. Primary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Excisions.
- d. Amputated fractures.
- e. Other operations.

b. Complete Fractures.

1784. b. 1. The bones of both forearms. The left radius and ulna were obliquely fractured at the junctions of their upper thirds, and the superior fragments are wanting. The right radius is nearly transversely fractured in the lower part of the middle third, and several longitudinal fractures occupy the lower fragment; none involve the upper. The lowest third of the ulna is comminuted. The right humerus, left scapula and most of the ribs were fractured at the same time.

J. G., employé Subsistence Department, 36. run over by a horse car, and died in one hour, Washington, 10th August, 1863.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.
See 1631, **IV.** B. A. b. 1; 1786, **VI.** B. A. b. 1.

For other illustrations, see 2977, **XI.** B. A. b. 1; 2991, **XIII.** B. A. c. 2.

d. Amputated Fractures.

3181. d. 1. The lower portions of the left radius and ulna, thoroughly comminuted by a street railroad accident, amputated in the upper third. Each bone has two distinct transverse fractures an inch and a half apart. The comminution does not extend above the upper one.

Private T. H., "H," 49th New York, 44: injured and amputated, Washington, 30th August; transferred to Veteran Reserve Corps, 27th November, 1864.
Contributed by Assistant Surgeon Philip C. Davis, U. S. Army.
See 1813, **XXI.** B. B. b. 1.

B. Secondary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Excisions.
- d. Amputated fractures.
- e. Other operations.
- f. Stumps.
- g. Sequestra.

b. Complete Fractures.

531. b. 1. The right radius, showing a simple fracture consolidated with slight deformity, but without shortening. This specimen, which is more than two hundred years old, was picked up upon an ancient battle-field on Oahu, Sandwich Islands.
Contributed by Assistant Surgeon W. R. De Witt, jr., U. S. Vols.

For other illustrations, see 205, **VII.** A. B. f. 112; 2252, **IX.** A. B. f. 1.

d. Amputated Fractures.

See 1770, **VII.** B. B. g. 1.

g. Sequestra.

See 4711, **XXIII.** B. D. 6.

IX. INJURIES AND DISEASES OF THE CARPAL ARTICULATIONS.

- **A.** Gunshot Injuries.
  - **A.** Primary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Excisions.
    - d. Disarticulations.
    - e. Amputations in the forearm or arm.
    - f. Other operations.
  - **B.** Secondary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Caries consecutive upon other injury than fracture of the bones of the joint.
    - d. Excisions.
    - e. Disarticulations.
    - f. Amputations in forearm or arm.
    - g. Other operations.
    - h. Stumps.
    - i. Sequestra.
- **B.** Injuries not caused by Gunshot.
  - **A.** Primary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Dislocations.
    - d. Excisions.
    - e. Disarticulations.
    - f. Amputations in the forearm or arm.
    - g. Other operations.
  - **B.** Secondary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Dislocations.
    - d. Caries consecutive upon other injury than fracture of the bones of the joint.
    - e. Excisions.
    - f. Disarticulations.
    - g. Amputations in the forearm or arm.
    - h. Other operations.
    - i. Stumps.
    - k. Sequestra.
- **C.** Diseases.

IX. CARPAL ARTICULATIONS.

A. Gunshot Injuries.

A. Primary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Excisions.
- d. Disarticulations.
- e. Amputations in the forearm or arm.
- f. Other operations.

c. Excisions.

2881. c. 1. The lower extremities of the right radius and ulna, and fragments representing four inches of the shafts of the bones, excised for comminution involving the articulation.

Private J. W. V., "H," 9th New York Heavy Artillery, 21: Monocacy, 9th July; admitted hospital and excised by Acting Assistant Surgeon A. V. Cherbonnier, Baltimore, 10th July, 1864; discharged, with motion of the fingers, 13th February, 1865.

Contributed by the operator.

e. Amputations in the Forearm or Arm.

2263. e. 1. The right carpus and metacarpus and portions of the bones of the forearm. The radius is fractured for one and a half inches and several of the carpal bones are broken. The point to be observed in this specimen was primary amputation at the insertion of the deltoid, but in its preparation all above the lowest third of the forearm was accidentally sawn off and thrown away.

Lieutenant S., "H," 14th New York State Militia: amputated by a civil practitioner in Washington, and contributed as a surgical curiosity by Surgeon Robert Reyburn, U. S. Vols.

See 3288, **XV.** B. A. d. 4., from the same operator.

359. e. 2. The lower halves of the bones of the right forearm. The radius is obliquely fractured at its lowest third by a bullet passing transversely, grooving the cancellated structure and opening the joint.

Private J. K., "G," 1st Pennsylvania Heavy Artillery: Second Bull Run, 30th August; admitted hospital, Alexandria, 1st September; amputated in the middle third by Surgeon E. Bentley, U. S. Vols., 2d September; discharged the service, 20th October, 1862.

Contributed by the operator.

3178. e. 3. The lowest thirds of the bones of the right forearm, fractured, with a loss of two inches from each just above the articulation, by a fragment of rifle shell, which is attached. Primary amputation was probably performed.

Contributor and history unknown.

See class **XXVII.** B. A. c.

1058. e. 4. A wet preparation of the left hand and wrist, primarily amputated in the lowest fourth of the forearm. The semilunar, cuneiform, pisiform, unciform and magnum are shattered. The laceration of the integument appears to be chiefly due to incisions made after amputation.

Contributed by Acting Assistant Surgeon G. F. Shrady.

For other illustrations, see 2873, **VII.** A. B. f. 43; 1175; **VII.** A. B. f. 58; 1176. **XXI.** A. B. b. 4.

B. Secondary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Caries.
- d. Excisions.
- e. Disarticulations.
- f. Amputations in forearm or arm.
- g. Other operations.
- h. Stumps.
- i. Sequestra.

b. Complete Fractures.

1617. b. 1. A ligamentous preparation of the bones of the right hand, wrist and lower extremity of the forearm. The radius and ulna were slightly fractured at their articulation and the entire wrist joint became disorganized. This man also suffered from a severe wound of the leg, and at no time after entering hospital was able to endure an operation.

Private J. C. M., "F," 2d New Hampshire, 15: probably Gettysburg, 3d July; admitted hospital, Baltimore, 16th; died, 27th July, 1863.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

1337. b. 2. A ligamentous preparation of the left hand and wrist and the lower portion of the radius. A bullet has passed transversely through the carpus, fracturing nearly every bone and involving all of them with caries. This man also suffered a fracture of the femur, from which he died.

Private J. McL., "B," 5th Wisconsin, 21: Second Fredericksburg, 3d May; admitted hospital, Washington, 8th May; died 16th June, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See class **XIII.** A. B. b.

3846. b. 3. The bones connected with the right carpus. The third metacarpal bone is fractured by a conoidal ball and partly necrosed; all the carpal bones and the extremities of the metacarpals and bones of the forearm are carious.

Private B. L., "H," 116th Ohio: Berryville, Va., 3d September; admitted hospital, Frederick, 6th September; died from pyæmia, 2d October, 1864.

Contributed by Acting Assistant Surgeon E. R. Ould.

2916. b. 4. The bones of the right forearm. The lower portion of the radius has been carried away for two inches, and the extremity is irregular and carious, with one or two points where necrosed bones are beginning to separate. The extremity of the ulna, which appears to have been contused, is carious. The specimen has been sawn longitudinally, as though to examine for osteo-myelitis in the recent state.

Private W. J., "K," 93d New York: admitted hospital, near Alexandria, with gunshot of foot and forearm, 28th May; died, 13th July, 1864.

Contributed by Surgeon D. P. Smith, U. S. Vols.

3838. b. 5. The bones of the right forearm and parts of the carpus and metacarpus. An oblique fracture, which had been partly consolidated in life but became disunited in maceration, extends through the lowest thirds of the radius, to the extremity of which the scaphoid bone is anchylosed. The specimen is broken about the junction of the lower thirds, but that injury appears to have occurred *post mortem*. The original injury was inflicted by a missile passing directly through the wrist.

Private H. B. W., "G," 27th Indiana: Antietam, 17th Sepember; admitted hospital, Frederick, 18th September; died from phthisis, 27th December, 1862.

Contributed by Acting Assistant Surgeon W. S. Adams.

3770. b. 6. The lower extremities of the bones of the right forearm, the carpus and the metacarpus. The second metacarpal bone is missing; the third metacarpal is fractured at its base, with deposits of callus; the trapezium, trapezoid, magnum and scaphoid are shattered, and the extremity of the radius is fractured, with a fragment adherent by callus. All the broken surfaces are carious.

Received without history from Nashville

543. b. 7. The lower portions of the bones of the left forearm, the carpus and metacarpus. The ulna is partially fractured in the lowest third, and a round ball is embedded in the radius at the carpal articulation as was found after death.

Private J. S. A: probably Fredericksburg, 13th December; admitted hospital, Washington, 18th; died from tetanus, 23d December, 1862.

Contributed by Surgeon James D. Robison, U. S. Vols.

See class **XXVII.** B. B. d.

2953. A wet preparation of two inches of the lower extremity of the right ulna, which is fractured by a round ball
b. 8. embedded between it and the semilunar.

Contributor and history unknown.

3815. The lower extremity of the right radius, the bones of the carpus and the bases of the metacarpal bones. The
b. 9. radial and intercarpal articulations are carious, and some of the bones are broken down.

Private H. C., "A," 156th New York, 18: penetrating fracture of the carpus and flesh wound of thorax, Winchester, 19th September; admitted hospital, Frederick, 27th September; died, 28th October, 1864.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

c. Caries.

4209. The carpal extremities of the bones of the right forearm, carious after perforation of the metacarpus. The entire
c. 1. articulation must have been disorganized.

Private R. P., "G," 24th New York Cavalry: wounded, 12th May; died exhausted, Philadelphia, 7th August, 1864.

Contributed by Assistant Surgeon H. S. Schell, U. S. Army.

2773. The two lower thirds of the bones of the left forearm, the carpus and the metacarpal bones, except the middle.
c. 2. Amputation was performed for ulceration of the wrist from gangrene following removal of the middle finger and metacarpal bone. There is no lesion of the the osseous structures.

Private J. G. K., "G," 75th Pennsylvania, 42: Gettysburg, 1st July; operation upon the hand performed before admission to hospital, Philadelphia, 9th; amputated for recurring secondary hæmorrhage, 29th July; died from exhaustion, 19th August, 1863.

Contributed by Acting Assistant Surgeon M. Lampen.

See 2616, **XVIII. II.** A. B. c. 3.; 2615, **XXI.** A. B. b. 1; 1037, **XXII.** A. B. c. 8.

See classes **IX.** A. B. f.; **X.** A. B. b.

d. Excisions.

3214. Portions of the carpus and metacarpus and bones of the left forearm. The long bones are exceedingly diseased
d. 1. from ulceration following gunshot. The scaphoid, cuneiform and trapezoid were removed through the wound after ulceration.

Private T. E. H., "A," 1st Maryland, 31: North Anna, 21st May; admitted hospital, Baltimore, 25th June; bones removed, 1st August; died under chloroform administered preparatory to excision of other carpal bones, 5th September, 1864.

Contributed by Acting Assistant Surgeon G. W. Fay.

2987. The semilunar bone and two and a half inches of the lower extremity of right ulna, excised for gunshot.
d. 2. Private W. B., "B," 49th U. S. Colored Troops, 25: accidentally wounded by a conoidal ball, Vicksburg, 1st September; excised, December, 1865; mustered out of service with full use of hand and tolerable use of wrist, 22d March, 1866.

Contributed by Acting Assistant Surgeon Geo. F. Rockwell.

3584. Three and one-fourth inches of the ulna, excised for fracture of the carpal extremity. The fragments have
d. 3. become attached to the shaft by a heavy deposit of callus.

Contributed by Surgeon J. B. Lewis, U. S. Vols.

437. Portions of the right carpus and metacarpus. A conoidal ball fractured the wrist, and the carpus and third
d. 4. metacarpal bone were excised.

Private J. W. H., "K," 27th Georgia (Rebel): Antietam, 17th September; excised by Assistant Surgeon Philip Adolphus, U. S. Army, 17th October, 1862. Recovered.

Contributed by the operator.

2351. One and three-fourths inches of the lower extremity of the right radius, excised. The head of the radius is badly
d. 5. fractured by a ball which entered near the wrist and passed on wounding the arm near the elbow.

Private G. G., "C," 20th Massachusetts, 26: Wilderness, 6th May; admitted hospital, Washington, 22d; excised by Acting Assistant Surgeon W. H. Ensign, 23d May, 1864; discharged the service, 6th May, 1865.

Contributed by the operator.

For other illustrations, see 3712, **VIII.** A. B. c. 36; 487, **IX.** A. B. f. 27; 157, **IX.** A. B. f. 44; 3693, **IX.** A. B. f. 46; 2852, **IX.** A. B. f. 57; 3301, **IX.** A. B. f. 65; 4628, **XXVI.** A. 2, 59.

e. Disarticulations.

3622. The second row of carpal bones and the last four metacarpals. The second and third metacarpal bones were
e. 1. fractured by shell and partially necrosed; caries has involved the carpo-metacarpal articulation, and amputation has been performed between the two carpal rows.

Private J. V., "C," 3d New Hampshire: Drury's Bluff, 16th May; admitted hospital, Philadelphia, 20th May; disarticulated by Acting Assistant Surgeon W. P. Moon, 16th July, 1864. Recovered.

Contributed by Surgeon Joseph Hopkinson, U. S. Vols.

For other illustrations, see 3674, **VIII.** A. B. a. 3; 135, **X.** A. B. d. 14; 4197, **XXI.** A. B. b. 10.

f. Amputations in Forearm or Arm.

2252. The lowest thirds of the bones of the left forearm. The radius has been fairly perforated near the extremity by
f. 1. a moderately small missile, which appears to have passed into the wrist joint. Fissures extend into the articulation and a longitudinal fracture runs three inches up the shaft. The line of amputation appears to pass through an old consolidated fracture of the radius

Sergeant G. M., "E," 5th Michigan, 22: admitted hospital, Washington, 17th August; amputated, 21st August; discharged the service, 6th December, 1864.

Contributed by Acting Assistant Surgeon S. Graham.

See class **VIII.** B. B. b.

3255. The right carpus and metacarpus and lower halves of the bones of the forearm. This man was wounded by a
f. 2. conoidal ball which entered the posterior portion of the left deltoid one and a half inches above the border of the axilla, emerged through the pectoralis major, over the superior border of the fourth rib, four and a half inches to the left of the median line, and reëntered the subject in the middle third of the palmar aspect of the right forearm. In the specimen the radius is seen to be obliquely fractured at the junction of the lower thirds and chipped at its inner articular border, and the carpus is nearly wanting, as though destroyed by caries. The heads of the metacarpal bones are also carious.

Sergeant S. M. E., "K," 17th Pennsylvania Cavalry, 44: Trevillian Station, Va., 12th June; admitted hospital, Washington, 21st June; amputated for gangrene by Acting Assistant Surgeon John Winslow, in the middle of forearm, 17th September, 1864; discharged, 4th April, 1865.

Contributed by Assistant Surgeon C. A. McCall, U. S. Army.

See class **XXIII.** A. B.

1913. The lower halves of the bones of the left forearm, comminuted two inches above the wrist by a bullet. The soft
f. 3. parts were much burned and the wound was probably caused by the patient's own piece, which he denied. A longitudinal fracture extends down the radius into the joint.

Private J. S., "I," 17th Kentucky: on picket, 22d April; admitted hospital, Nashville, 23d April; amputated in the middle third, after gangrene, 12th May, 1863. Recovered.

Contributed by Assistant Surgeon C. C. Gray, U. S. Army.

See class **XXIII.** A. B.

2768. The bones of the lower half of the left forearm. The radius was contused in its lowest third and is necrosed for
f. 4. nearly three inches, the lower extremity of the ulna was carried away, and a nearly detached sequestrum extends for six inches up the shaft.

Private N. L. N., "A," 4th U. S. Artillery, 24: Gettysburg, 1st July; admitted hospital, Philadelphia, 5th July; amputated in the middle third, after hospital gangrene, 3d September, 1863. Recovered.

Contributed by Acting Assistant Surgeon W. C. Dixon.

See class **XXIII.** A. B.

3327. The lower halves of the bones of the left forearm. The lower two inches of the ulna are shattered, involving
f. 5. the joint.

Private W. A., "D," 16th Michigan: Cold Harbor, 2d June; admitted hospital, Alexandria, 9th; amputated in the middle third by Surgeon Charles Page, U. S. Army, 4th July; died from gastro-enteritis, 10th July, 1864.

Contributed by Acting Assistant Surgeon S. D. Twining.

2005. A ligamentous preparation of the right carpus and metacarpus and adjacent portions of the bones of the forearm.
f. 6. The radius was completely fractured two and a half inches above the articulation. The outer and inner borders remain in the specimen, but the intermediate tissue has been removed.

Private A. L., "A," 63d Pennsylvania: Mine Run, 27th November; admitted hospital, near Alexandria, 4th December; amputated by Surgeon D. P. Smith, U. S. Vols., 13th; died exhausted, 15th December, 1863.

Contributed by the operator.

2943. The carpus and lower thirds of the bones of the right forearm. The palmar articular surface of the ulna is
f. 7. fractured, opening the joint.

Private D. R., "H," 148th New York, 52: Cold Harbor, 3d June; admitted hospital, Washington, 5th; amputated in the lowest third, 10th June; discharged the service, 9th October, 1864.

Contributed by Surgeon O. A. Judson, U. S. Vols.

1777. A ligamentous preparation of the right carpus, metacarpus and lower extremities of the bones of the forearm. A
f. 8. bullet appears to have passed from the palmar aspect directly through the radio-carpal articulation. The first row of bones is denuded and partially eroded. Amputation probably occurred.

Contributor and history unknown.

1733. The lower halves of the bones of the forearm. The heads of three metacarpal bones, all the carpals and the
f. 9. extremity of the radius are shattered. The radius has two oblique fractures extending two inches up the shaft.

Corporal W. V., "K," 91st Pennsylvania, 22: Petersburg, 27th October; admitted hospital, Washington, 4th November; amputated by Acting Assistant Surgeon J. H. Thompson, 8th November, 1864; discharged the service, 20th July, 1865.

Contributed by Assistant Surgeon Philip C. Davis, U. S. Army.

4234. The lower portions of the bones of the right forearm, with the outer half of the radial articulation carried away
f. 10. by a conoidal ball which passed through the wrist. An oblique fracture extends up the shaft of the radius nearly the extent of the specimen.

Private W. H., "G," 38th Wisconsin, 38: Petersburg, 2d April; admitted hospital, Washington, 5th; amputated at junction of lower thirds, 9th April; died from pleurisy, 1st May, 1865.

Contributed by Surgeon O. A. Judson, U. S. Vols.

2929. The bones of the left carpus and lower portions of the bones of the forearm. One inch of the carpal extremity of
f. 11. the radius is shattered.

Sergeant P. H. W., "B," 1st Massachusetts Heavy Artillery, 28: Spottsylvania, 19th May; admitted hospital, Washington, 24th May; amputated below the shoulder by Acting Assistant Surgeon J. O. French, 3d June; died, 22d June, 1864.

Contributed by Surgeon O. A. Judson, U. S. Vols.

2266. A ligamentous preparation of the right metacarpus, carpus and lower portions of the bones of the forearm. The
f. 12. radius has been perforated from behind at the carpal articulation, and a certain amount of callus is deposited.

Private W. T., "E," 27th Michigan, 22: Spottsylvania, 12th May; admitted hospital, Washington, 16th; amputated by Surgeon A. F. Sheldon, U. S. Vols., 17th May, 1864.

Contributed by the operator.

1614. A ligamentous preparation of the left hand, wrist and lowest thirds of the bones of the forearm. The radius and
f. 13. ulna were fractured at their articulation with each other and with the carpus, opening the joint.

Private J. H., "A," 140th New York: Gettysburg, 2d July; admitted hospital, Baltimore, 14th; amputated in the lowest third, 28th July; died, 24th August, 1863.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

1608. A ligamentous preparation of the left hand, wrist and lower portions of the bones of the forearm. The styloid
f. 14. process of the ulna was fractured by a conoidal ball which passed transversely over the dorsum of the carpus, opening the joint. No other bone has been fractured, but the most of the articular surfaces are carious.

Private J. F. S., "I," 150th Pennsylvania, 21: Gettysburg, 2d July; admitted hospital, Baltimore, 9th; amputated in the lowest fourth of the forearm by Assistant Surgeon D. C. Peters, U. S. Army, 29th July, 1863. Recovered.

Contributed by the operator.

4137. The lower extremities of the bones of the right forearm. The outer half of the radius is carried away, and a
f. 15. longitudinal fracture extends the length of the specimen.

Private H. B. S., "H," 26th Georgia (Rebel): Petersburg, 25th March; amputated by Surgeon W. O. McDonald, U. S. Vols., City Point, 16th April; released, 7th August, 1865.

Contributed by the operator.

264. The left carpus and metacarpus, and lower portions of the bones of the forearm. The lower extremity of the
f. 16. radius was fractured by the transverse oblique passage of a ball across the dorsum of the wrist, completely shattering that bone and opening the articulation. The specimen shows two or three thin fragments united by callus, and the inner portion of the bone to be carious.

Private T. G. F., "H," 70th New York: Second Bull Run, 30th August; admitted hospital, Chester, 3d September; amputated in the lowest third by Acting Assistant Surgeon John Ashurst, 25th September; discharged, healed, November, 1862.

Contributed by Surgeon John L. LeConte, U. S. Vols.

3827. The lowest thirds of the bones of the left forearm. The radius is shattered just above the articulation, with
f. 17. fractures extending into the joint.

Private G. S., "I," 21st New York Cavalry: wounded and admitted hospital, Frederick, 10th July, 1864. Amputated in the middle third of the forearm by Acting Assistant Surgeon J. H. Bartholf. Recovered.

Contributed by the operator.

82. A ligamentous preparation of the left carpus and metacarpus, and lowest thirds of the bones of the forearm. The
f. 18. radius is obliquely fractured, with comminution on the palmar surface at the carpal articulation. Amputation was probably performed.

From an unknown Rebel: contributed by Surgeon J. H. Brinton, U. S. Vols.

2701. The lowest thirds of the bones of the left forearm. The radius is shattered at its extremity for two inches.
f. 19. Private D. K., "F," 179th New York, 30: Petersburg, 16th June; admitted hospital, Washington, 24th; amputated in the forearm, 28th June; discharged the service, 9th August, 1864.

Contributed by Surgeon N. R. Mosely, U. S. Vols.

3322. The lowest three inches of the bones of the right forearm. The radius is obliquely fractured by a conoidal ball
f. 20. which impinged on the outer carpal border.

Private A. R., "G," 11th New Hampshire, 24: Weldon R. R., 30th September; admitted hospital, Washington, 5th October; amputated by Acting Assistant Surgeon C. W. Carrier, 21st October, 1864; discharged the service, 6th July, 1865.

Contributed by the operator.

1294. The lower extremity of the left radius fractured on the outer and carpal border, with oblique fissuring extending
f. 21. up the shaft. There was no injury to the tendons of the wrist.

Private A. H. C., "D," 26th Maine, 21: Irish Bend, La., 14th April; admitted hospital, New Orleans, 17th April; amputated below the elbow for gangrene, 2d May; died from pyæmia, 9th May, 1863.

Contributed by Assistant Surgeon P. S. Conner, U. S. Army.

See class **XXIII.** A. B.

2534. The lower halves of the bones of the left forearm. A bullet appears to have passed between the radius and ulna,
f. 22. chipping the adjacent border of each.

Private G. F., "K," 8th New York Artillery: Cold Harbor, 3d June; amputated, 14th June, 1864; ("died, gunshot of breast, 6th July, 1864"?)

Contributed by Surgeon E. Bentley, U. S. Vols.

2503. The lower halves of the bones of the left forearm and the carpus. The lowest two inches of the ulna have been
f. 23. carried away by gunshot, and the radius is contused at the ulnar articulation. The semilunar and the extremity of the radius are carious, and the fragment of the ulna is necrosed.

Corporal F. A. S., "H," 4th Maine: Wilderness, 5th May; admitted hospital, Washington, 13th; amputated in the middle third of the arm on account of erysipelas, 30th May, 1864. Recovered.

Contributed by Acting Assistant Surgeon Fred. G. H. Bradford.

See class **XXIII.** A. A.

3087. The carpus and metacarpus and lower halves of the bones of the left forearm. The lower two inches of the ulna
f. 24. were carried away, the carpal articulation is carious and the shafts of the long bones are necrosed above the point of fracture.

Private H. C. F., "H," 7th Michigan, 22: Deep Bottom, Va., 27th July; admitted hospital, Washington, 30th July; amputated in the middle third by Acting Assistant Surgeon A. F. A. King, 15th August; died, 1st September, 1864.

Contributed by the operator.

2591. The lower portions of the bones of the left forearm and the pisiform, unciform and semilunar. The radius is
f. 25. longitudinally fractured at the extremity and is carious within.

Corporal J. C., "I," 136th New York: Gettysburg, 3d July; amputated in the middle third of the left forearm by Assistant Surgeon C. R. Greenleaf, U. S. Army, Philadelphia, 16th August, 1863. Recovered.

Contributed by the operator.

2878. The lower halves of the bones of the right forearm. The lowest two inches of the ulna are comminuted and
f. 26. the inner border of the radius chipped. The semilunar bone was fractured, but the carpus has not been preserved.

Private A. W., "B," 1st Michigan Sharpshooters, 23: Spottsylvania, 12th May; admitted hospital, Annapolis Junction, 7th June; amputated by Acting Assistant Surgeon F. M. Lincoln, in the lowest third of the arm, 14th; died, 23d June, 1864.

Contributed by Assistant Surgeon C. Bacon, jr., U. S. Army.

487. f. 27. The ulna and upper half of the radius, the metacarpus and portion of the carpus of the right forearm. The radius was shattered in the lowest third, the fracture extending into the joint. For this the lower half of the radius was removed. The excised extremity is irrregular and carious, and does not present the marks of a clean-cutting instrument. The lower extremity of the ulna is carious and the carpal bones are thoroughly diseased, the greater portion of the first row having disappeared under absorption. Both articulations of the metacarpals show carious conditions.

Private M. E. J., "F," 94th New York: Antietam, 17th September; lower half of the radius excised by Acting Assistant Surgeon Boardman, Washington, 15th October; amputated in the arm, 19th December; died 30th December, 1862.

Contributed by Acting Assistant Surgeon J. H. Jamar.

See class **VIII.** A. B. c; **IX.** A. B. d.

993. f. 28. The two lower thirds of the bones of the right forearm. The missile passed obliquely and transversely through the lower extremities of the bones and fractured the carpus, escaping over the second metacarpal bone. The radius became necrosed for four inches, to which distance a detached sequestrum, confined by a tolerable involucrum, may be seen in the specimen. The carpal extremities became anchylosed and the joint entirely disorganized.

Private J. A., 33d New York, 50: Fredericksburg, 13th December; admitted hospital, Point Lookout, Md., 16th December, 1862; amputated below the elbow by Acting Assistant Surgeon James W. Digby, 8th January; inter-osseous artery ligated, 8th and 11th; died from pyæmia, about the close of January, 1863.

Contributed by Assistant Surgeon C. Wagner, U. S. Army.

See class **XVIII. II.** A. B. b.

3253. f. 29. The lower halves of the bones of the right forearm and three of the carpal bones. The lowest two inches of the radius have been carried away and the extremity is necrosed. The ulna is necrosed for four inches from the joint.

Corporal F. P., "B," 7th New York, 31: Weldon R. R, Va., 25th August; admitted hospital, Washington, 28th August; amputated in the middle third of the forearm by Acting Assistant Surgeon Belton, 19th September; died exhausted, 24th October, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

1783. f. 30. The left carpus and metacarpus and the greater portion of the bones of the forearm. Two oblique fractures from the carpal articulation comminute the lowest two inches of the radius, the semilunar bone is fractured and the ulna is nearly transversely broken just above its extremity. A prolonged effort has been made to save the limb, as is seen by the roughened condition of the shaft, and amputation was probably finally performed below the elbow.

Received, without history, from Nashville.

1138. f. 31. The bones adjoining the right wrist joint. The lower extremity of the ulna and the cuneiform bone are shattered, and the radius is chipped.

Private A. C., "D," 95th Pennsylvania: Second Fredericksburg, 3d May; admitted hospital, Washington, 19th; amputated below the elbow, on account of extensive sinuses, by Acting Assistant Surgeon W. H. Ensign, 20th May, 1863; discharged the service, 10th August, 1864.

Contributed by the operator.

3660. f. 32. The lowest thirds of the bones of the left forearm, with the first row of carpal bones. The scaphoid and articulating surface of the radius are shattered by the direct passage of a conoidal ball.

Private J. C. P., "E," 19th Maine, 43: Petersburg, 23d June; admitted hospital, Philadelphia, 30th June; amputated in the middle third for secondary hæmorrhage by Acting Assistant Surgeon Charles Styer, 14th July; sequestrum removed from the radius, 14th November, 1864; discharged the service, 26th May, 1865.

Contributed by the operator.

See 511, **VIII.** A. B. g. 3.

332. f. 33. The lower extremities of the bones of the right forearm, the carpus and metacarpus. A transversely grooved fracture across the back of the wrist involves the bases of the second, third and fourth metacarpals. The greater portion of the shaft of the second metacarpal is necrosed and the cuneiform is fractured.

Private J. P. G., "F," 27th Indiana, 33: Antietam, 17th September; admitted hospital, Washington, the latter part of the month; amputated above the elbow by Assistant Surgeon J. J. Woodward, U. S. Army, 13th November, 1862. Died.

Contributed by Acting Assistant Surgeon A. P. Williams.

4072. f. 34. The left carpus and metacarpus. The index-metacarpal, trapezoid and part of the magnum were fractured, and part of the metacarpal is said to have been excised.

Private D. L. C., "I," 61st New York, 18: Petersburg, 25th March; admitted hospital, Washington, 30th March; excised, 1st April; amputated in the lowest third of the forearm by Surgeon N. R. Mosely, U. S. Vols., 7th April: discharged the service, 8th June, 1865.

Contributed by the operator.

See class **X.** A. B. c.

173. The left carpus and metacarpus. The second, third and fourth metacarpal bones are fractured at their carpal
f. 35. articulations and necrosed at the extremities of the shafts.

Private U. McK., "I," 14th New York Heavy Artillery, 20: Petersburg, 29th March; admitted hospital, Washington, 5th April, 1865; amputated at the junction of the lower thirds of the forearm by Acting Assistant Surgeon L. J. Draper. Recovered.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

554. The right wrist and hand. The last four metacarpals are badly fractured, as though by shell, the carpo-metacarpal
f. 36. articulation is torn open, and the trapezoid is fractured on the dorsal surface.

Private J. N. W., "B," 1st Vermont Artillery: Winchester, 19th September; admitted hospital, Philadelphia, 27th September; amputated in the middle of the arm, on account of the unfavorable condition of the forearm, by Acting Assistant Surgeon W P. Moon, 1st October, 1864. Recovered.

Contributed by Acting Assistant Surgeon Alfred G. Gibbs.

2337. The lower portions of the bones of the left forearm and the greater part of the bones of the hand. The second
f. 37. and third metacarpal bones are fractured at their carpal articulation. The missile escaped in the middle third of the forearm.

Private W. H., "C," 2d U. S. Infantry, 26: Wilderness, 9th May; admitted hospital, Washington, 12th; amputated above the elbow for gangrene, 23d May, 1864.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

See class **XXIII.** A. B.

3617. The left carpus and adjacent bones. The third metacarpal bone was amputated for bullet fracture; all the
f. 38. carpal bones are carious and the articulation was entirely destroyed.

Private S. H., "A," 183d Pennsylvania, 19: Wilderness, 7th May; metacarpal bone removed, Alexandria, 9th; admitted hospital, Philadelphia, 22d May; amputated in the lowest third of the arm, 25th August, 1864. Recovered.

Contributed by Acting Assistant Surgeon S. C. Cummins.

See class **X.** A. A. d.

3656. The lower portions of the bones of the left forearm, the carpus and the first and fifth metacarpals.
f. 39. Private D. G., "E," 184th Pennsylvania, 37: Cold Harbor, 10th June; middle and ring fingers removed on the field; admitted hospital, Philadelphia, 28th June; second, third, fourth and head of the fifth metacarpal removed, 19th July; amputated in the middle of forearm, 28th July, 1864. Recovered.

Contributed by Acting Assistant Surgeon G. P. Sargent.

See class **X.** A. A. d.

2909. The right metacarpal, carpus and lower extremities of the bones of the forearm. The metacarpal bone of the
f. 40. thumb is shattered and the fragments are carious. The most of the carpal articular surfaces are carious.

Private H. C., "I," 155th New York, 25: conoidal ball, Petersburg, 16th June; admitted hospital, Washington, 30th June, 1864; amputated in the forearm; discharged the service, 27th January, 1865.

Contributed by Assistant Surgeon C. A. McCall, U. S. Army.

3616. The right carpus and metacarpus and lower portions of the bones of the forearm. A conoidal ball fractured
f. 41. the least phalanx, passed diagonally under the metacarpals, denuding them of periosteum, and escaped at the trapezium. The last four metacarpal bones are partly necrosed; the first presents an irregularity of appearance similar to an old consolidated fracture; the trapezoid is wanting; the magnum and semilunar are fractured, and the other articulating bones are carious.

Private S. C., "B," 3d Vermont, 28: Cold Harbor, 3d June; admitted hospital, Philadelphia, 11th June; amputated above the wrist by Acting Assistant Surgeon W. R. Stavely, 25th July, 1864; discharged, 2d February, 1865.

Contributed by Surgeon Joseph Hopkinson, U. S. Vols.

See class **X.** B. B. b.

3324. The right carpus and metacarpus. The fourth and fifth metacarpal bones are shattered, the magnum is missing
f. 42. and the trapezoid and trapezium are fractured.

Private J. H. M., "G," 1st New Jersey Cavalry, 21: Charles City, Va., 24th June; admitted hospital, Alexandria, 28th June; amputated in the middle third of the forearm by Assistant Surgeon Theodore Artaud, U S. Vols., 13th July, 1864. Recovered

Contributed by Acting Assistant Surgeon S. D. Twining.

2896. The lower extremities of the bones of the left forearm, the carpus and metacarpus. The trapezoid, magnum and
f. 43. unciform are missing, the third and fourth metacarpals are fractured, and the articular surfaces of the other bones carious.

Sergeant J. D. G., "G," 184th Pennsylvania, 25: Petersburg, 22d June; admitted hospital, Washington, 30th June; amputated in lowest third by Surgeon N. R. Mosely, U. S. Vols., 24th July, 1864. Recovered.

Contributed by Acting Assistant Surgeon W. H. Combs.

157. The bones of the left hand, wrist and lower half of the forearm. The second metacarpal and carpal bones are
f. 44. much disorganized from gunshot perforation. Callus has been deposited on the second and third metacarpals, but the carpus is carious. There has been a partial excision of the extremity of the radius, and amputation was finally performed in the middle third of the forearm.

Contributed by Assistant Surgeon C. A. McCall, U. S. Army.

See class **IX.** A. B. d.

2368. The left carpus and metacarpus and lower portions of the bones of the forearm. The third and fourth metacarpals
f. 45. are fractured, and the styloid process of the ulna and inner portions of the carpus are missing. All the articular surfaces are carious.

Private H. M. C., "K," 17th Vermont, 18: Wilderness, 5th May; amputated in the lowest third of the forearm by Assistant Surgeon D. C. Peters, U. S. Army, Baltimore, 21st May; died of pyæmia, 15th June, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles.

3693. The lowest thirds of the bones of the left forearm and parts of the carpus and metacarpus. The trapezius,
f. 46. trapezoid, parts of the scaphoid and magnum, the base of the first metacarpus and a portion of the second have been excised. The remaining bones are anchylosed, the hand being prone.

J. M., late Private, "K," 33d Wisconsin: Yorkney Station, Miss., 22d December, 1862; some of the carpal bones excised by Dr. Maxwell, Keokuk, Iowa, January; and others by Surgeon M. K. Taylor, U. S. Vols., 2d April; discharged the service, 13th August, 1863; amputated in the lowest third by Surgeon H. Culbertson, U. S Vols., 21st June, 1864. Recovered.

Contributed by the operator.

See class **IX.** A. B. d.

1709. A ligamentous preparation of the left wrist, showing anchylosis following inflammation from erysipelas after
f. 47. primary amputation of the index finger for gunshot.

Private J. A. H., "B," 22d Kentucky: Vicksburg, 22d May; admitted hospital, Memphis, 4th June; amputated in the lowest third, 10th June, 1863.

Contributed by Acting Assistant Surgeon W. P. Sweetland.

See class **X.** A. A. d.

2477. A portion of the left carpus and metacarpus.
f. 48. Private J. H. E., "F," 28th Massachusetts: the ball entered at the back of the hand and escaped at the hypothenar eminence, Wilderness, 6th May; admitted hospital, Washington, 21st; portions of ring and little fingers excised; forearm amputated in middle third for gangrene, by Surgeon G. L. Pancoast, U. S. Vols., 31st May, 1864; discharged the service, 14th April, 1865.

Contributed by the operator.

See classes **X.** A. B, C.; **XXIII.** A. B.

243. The bones of the left hand, part of the carpus and the lowest thirds of the bones of the forearm. A conoidal
f. 49. ball entered two inches above the wrist and passed out between the bases of the fourth and fifth metacarpals. The inner border of the radius is fractured and a fragment retained by the periosteum and callus; the scaphoid, trapezium, trapezoid and semilunar are anchylosed together and to the first three metacarpals, and the unciform and last two metacarpals are anchylosed.

Private A. McM., "A," 7th Michigan: accidentally, 8th September: amputated in the middle of the forearm for secondary hæmorrhage by Assistant Surgeon A. M. Clark, U. S. Vols., Georgetown, 23d October; discharged, 3d December, 1862.

Contributed by the operator.

995. The left carpus and metacarpus and lower halves of the bones of the forearm. A conoidal ball fractured the
f. 50. middle metacarpal bone, the trapezoid, magnum and the styloid region of the radius. In the specimen the metacarpal is partially united with some displacement and the carpus is carious. Fragments of the radius are attached by periosteum, but the spongy portion of the bone is carious.

Private J. S., 127th Pennsylvania, 36: Fredericksburg, 13th December; admitted hospital, Point Lookout, 16th December, 1862; amputated in the upper third of the forearm by Acting Assistant Surgeon John Stearns, 16th January, 1863. Recovered.

Contributed by Assistant Surgeon C. Wagner, U. S. Army.

133. The bones of the left hand and wrist and the lower halves of the bones of the forearm. The magnum and
f. 51. extremity of the radius are fractured. The latter bone is necrosed, and amputation in the middle of the forearm was finally performed.

Contributed by Acting Assistant Surgeon F. H. Brown.

35. The left hand and wrist, after amputation in the forearm. The third and fourth metacarpal bones are obliquely
f. 52. fractured at their carpal articulation, and the magnum and unciform are shattered on their palmar surfaces by the lodgment of a spherical leaden bullet.

Private J. L., "F," 6th U. S. Infantry: Gaines' Mill, 27th June; admitted hospital, Georgetown, 7th July; amputated in the forearm by Acting Assistant Surgeon W. W. Hays, 28th July, 1862. Recovered.

Contributed by the operator.

3695. The lower portions of the bones of the right forearm, the carpus and three metacarpal bones. The wrist is
f. 53. completely anchylosed and the hand was useless from plastic deposits in the connective tissue and about the tendons of the fingers. The semilunar bone is partly necrosed and there is caries of those adjacent. The occasion of the injury is not reported.

Sergeant N. W. P., 2d Wisconsin Cavalry: amputated by Surgeon H. Culbertson, U. S. Vols., Madison, Wisconsin, 30th December, 1864; died from erysipelas, 7th January, 1865.

Contributed by the operator.

See class **XXIII.** A. a.

2806. The right metacarpus, carpus and lowest thirds of the bones of the forearm. The last four metacarpal bones are
f. 54. covered with a friable osseous layer upon their shafts and are carious at their bases, as are the articular extremities of the radius and ulna. The cuneiform and pisiform bones are missing, and most of the internal ones have been partially absorbed.

Private H. H. M., "E," 11th Pennsylvania Reserves, 21: North Anna, Va., 26th May; admitted hospital, Washington, 29th May; amputated at the junction of the upper thirds of the forearm by Assistant Surgeon Alfred Delaney, U. S. Vols., 6th June, 1864; discharged the service, 5th April, 1865.

Contributed by Surgeon A. F. Sheldon, U. S. Vols.

28. The lowest thirds of the bones of the left forearm, the carpus and metacarpus. The inner side of the radius is
f. 55. split and the semilunar and cuneiform are shattered.

Private W. W., "F," 71st New York, 24: wounded, 25th June; admitted hospital, Washington, 4th July; amputated at the junction of the upper thirds by Acting Assistant Surgeon W. W. Keen, jr., 20th July, 1862. Recovered.

Contributed by the operator.

2329. The right carpus and metacarpus, and lowest thirds of the bones of the forearm. The pisiform bone is missing,
f. 56. the process of the unciform bone has been broken off, and the fourth metacarpal is fractured at its base.

Private F. H., "G," 183d Pennsylvania, 50: Wilderness, 6th May; admitted hospital, Washington, 16th; amputated in the lowest third of the arm; died from tetanus, 18th May, 1864.

Contributed by Acting Assistant Surgeon A. Ansell.

2852. The lower extremities of the bones of the left forearm, the scaphoid, semilunar, cuneiform, trapezium, trapezoid
f. 57. and the first two metacarpals. The remainder of the bones of the hand were removed on the field. The bones entering the articulation are carious.

Corporal J. B. R., "K," 57th Massachusetts, 30: Petersburg, 17th June; admitted hospital, Washington, 24th June; arm amputated in the middle third, 19th July, 1864.

Contributed by Acting Assistant Surgeon V. B. Hand.

See 2894, **VI.** A. B. f. 31.

See class **IX.** A. A. d.

1953. A ligamentous preparation of the right carpus and metacarpus and lowest thirds of the bones of the forearm.
f. 58. The dorsal surfaces of the magnum and unciform are fractured, and the greater portions of the shafts of the last two metacarpal bones are shattered.

Amputation was performed for tetanus.

Contributor and further history unknown.

2580. The two lower thirds of the bones of the left forearm and portions of the scaphoid and semilunar. A musket
f. 59. ball entering between the second and third metacarpal bones fractured the carpus and, passing upward, split the inner border of the extremity of the radius.

Private J. C., "A," 110th Ohio: Wilderness, 6th May; admitted hospital, Washington, 11th; amputated by Acting Assistant Surgeon D. P. Wolhaupter, 6th June, 1864.

Contributed by Surgeon G. L. Pancoast, U. S. Vols.

98. A ligamentous preparation of the left hand, wrist and lower portions of the bones of the forearm. The carpus
f. 60. has been perforated between the cuneiform and semilunar and the pisiform and ulna by a small missile, as a buck-shot, entering on the dorsal aspect. Amputation was made in the lowest third.

Contributor and history unknown.

2277. The right carpus, metacarpus and lower extremities of the bones of the forearm. A conoidal ball has passed
f. 61. across the dorsum of the carpus, fracturing the pisiform, cuneiform, unciform, magnum and trapezoid.

Private J. H. C., "K," 17th Maine: Wilderness, 6th May; admitted hospital, Washington, 10th; amputated in the lowest third of the forearm, 11th May, 1864. Recovered.

Contributed by Surgeon O. A. Judson, U. S. Vols.

3720. The left carpus and metacarpus and lower portions of the bones of the forearm. The most of the carpal bones
f. 62. are fractured on their dorsal surfaces.

Corporal H. B., "E," 4th New Hampshire, 19: South Side R. R., Va., 30th September; amputated in the forearm, Beverly, N. J., 28th October; died from hospital gangrene, 8th November, 1864.

Contributed by Assistant Surgeon C. Wagner, U. S. Army.

See class **XXIII.** A. B.

174. The left carpus and metacarpus, except the semilunar and trapezium.
f. 63. Private H. P., "D," 207th Pennsylvania, 32: Petersburg, 2d April; admitted hospital, Washington, 5th; amputated at the junction of the upper thirds by Acting Assistant Surgeon A. H. Haven, 11th; died from pyæmia, 12th April, 1865.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

559. A ligamentous preparation of the carpus and lowest thirds of the bones of the left forearm. A missile has
f. 64. perforated the carpus at its dorsum and fractured the semilunar and cuneiform. Amputated in the lowest third.

Private D. Mc. P., "H," 20th Massachusetts: Fredericksburg, 13th December; amputated by Assistant Surgeon George M. McGill, U. S. Army, Washington, 24th December, 1862; reamputated August, 1863. Recovered.

Contributed by the operator.

3301. Portions of the left carpus and metacarpus, from which the pisiform, unciform and last two metacarpals are wanting.
f. 65. The missing bones were amputated for a fracture before admission to hospital.

Private J. C., "H," 7th New York Heavy Artillery, 29: amputated, Spottsylvania, 24th May; admitted hospital near Alexandria, 28th May; amputated in the forearm for impending gangrene, 4th June, 1864.

Contributed by Surgeon D. P. Smith, U. S. Vols.

See classes **IX.** A. A. d.; **XXIII.** A. B.

1797. A ligamentous preparation of the right carpus and metacarpus and lowest third of the bones of the forearm. A
f. 66. bullet has passed directly through the wrist, fracturing the third and fourth metacarpals, the magnum and unciform.

Private C. H. T., "F," 16th Maine, 29: Gettysburg, 1st July; admitted hospital, Baltimore, 16th; amputated 18th July, 1863.

Contributed by Acting Medical Cadet W. L. Bradley.

2921. The lower portions of the bones of the left forearm and the carpus and metacarpus. The wrist is fractured at the
f. 67. junction of the scaphoid and trapezium, and all the articular surfaces are eroded by caries.

First Sergeant H. M. N., "E," 25th New York Cavalry: before Washington, 11th July; admitted hospital, 12th July; amputated at the junction of the upper thirds of the forearm, for sloughing and secondary hæmorrhage after hospital gangrene, 2d August, 1864; discharged the service, 18th May, 1865.

Contributed by Acting Assistant Surgeon P. C. Porter.

See class **XXIII.** A. B.

2476. The left carpus and metacarpus and lower extremities of the bones of the forearm. A conoidal ball entered the
f. 68. dorsal aspect of the wrist near the ulnar articulation and passed directly downward and outward. The carpal bones are all partly disorganized from the direct effect of the gunshot or from caries, and the articular surfaces of the last four metacarpals and the radius are partly absorbed.

Private A. H., "D," 67th Pennsylvania: Wilderness, 6th May; admitted hospital, Washington, 11th; amputated in the lowest third by Acting Assistant Surgeon Ottman, 25th May; died, 21st June, 1864.

Contributed by Surgeon G. L. Pancoast, U. S. Vols.

2270. The lower extremities of the bones of the right forearm, the carpus and metacarpus, with a battered conoidal ball
f. 69. embedded in the carpus. The adjacent portions of the radius and ulna and the heads of the third and fourth metacarpals are fractured and the semilunar and magnum are missing.

Private O. J. McC., "K," 83d Pennsylvania, 26: Wilderness, 8th May; admitted hospital, Washington, 12th; amputated, 14th May, 1864. Recovered.

Contributed by Acting Assistant Surgeon Jona. Cass.

See class **XXVII.** B. B. d.

217. The left carpus and metacarpus and lower portions of the bones of the forearm. The base of the second meta-
f. 70. carpal, the trapezium, trapezoid, scaphoid, semilunar and extremity of the radius are fractured by a bullet that entered on the dorsum of the wrist and emerged on the inner side of the forearm two inches above the joint.

Private M. G. S., "G," 50th Georgia, (Rebel,) 22: South Mountain, 14th September; admitted hospital, Frederick, 17th; amputated junction upper thirds of the forearm, 4th October; died from pyæmia, 3d December, 1862.

Contributed by Acting Assistant Surgeon Alfred North.

3437. The right carpus and metacarpus and lowest thirds of the bones of the forearm. The trapezium, trapezoid and
f. 71. parts of the scaphoid, semilunar and magnum, have been carried away. The remainder of the carpal bones, except the unciform, are carious. The radius is anchylosed with the semilunar and cuneiform.

Private G. M., "A," 47th New York, 20: Drury's Bluff, 16th May; admitted hospital, Washington, 6th August; amputated at the junction of the lower thirds by Acting Assistant Surgeon J. H. Thompson, 25th November, 1864; discharged the service, 30th March, 1865.

Contributed by Assistant Surgeon Philip C. Davis, U. S. Army.

805. The lower halves of the bones of the forearm, the right carpus and metacarpus. All the carpal bones except the
f. 72. pisiform are shattered, and the extremity of the radius is fractured.

Private T. A., "E," 88th New York, 30: Antietam, 17th September; admitted hospital, Frederick, 23d September; amputated by Acting Assistant Surgeon John H. Bartholf, 6th October, 1864. Recovered.

Contributed by the operator.

3655. The left metacarpus, portions of the scaphoid, semilunar and cuneiform, and the extremities of the radius and
f. 73. ulna. The metacarpal articular surfaces are all carious.

Corporal C. H. L., "K," 8th Connecticut, 30: Petersburg, 10th August; admitted hospital, Philadelphia, 17th August; amputated for secondary hæmorrhage, 15th September, 1864. Died the same day.

Contributed by Acting Assistant Surgeon L. K. Baldwin.

3371. The lowest thirds of the bones of the left forearm, the carpus and metacarpus. A musket ball entered the ulnar
f. 74. side of the wrist and passed through it transversely, fracturing the last two metacarpals and all the carpal bones except the cuneiform and semilunar. The articular surfaces are carious and upon the metacarpals is a little callus.

Private F. M. D., "A," 51st Indiana, 26: Athens, Tenn , 7th April; admitted hospital, Nashville, 18th April; amputated after gangrene, 24th June, 1864; furloughed, healed, 3d August, 1864.

Contributed by Surgeon R. L. Stanford, U. S. Vols.

See class **XXIII.** A. B.

2938. The lower extremities of the bones of the right forearm, the carpus and metacarpus. The extremity of the ulna
f. 75. and last three metacarpal bones, the unciform and magnum are fractured, and the pisiform and second metacarpal are wanting.

Private W. J. S., "A," 1st Maine Heavy Artillery, 18: Cold Harbor, 3d June; admitted hospital, Washington, 7th; amputated in the lowest third of the forearm by Surgeon O. A. Judson, U. S. Vols., 10th June, 1864. Recovered.

Contributed by the operator.

4266. The left carpus and metacarpus and extremities of the bones of the forearm. The scaphoid, semilunar and
f. 76. cuneiform bones are fractured, and the other carpal bones and the extremities of those entering the articulation are carious.

Private T. E., "G," 15th New York Cavalry, 22: Burlington, Va., 16th April; amputated in the lowest third by Acting Assistant Surgeon C. H. Ohr, 10th May; died, 12th July, 1864.

Contributed by Surgeon J. B. Lewis, U. S. Vols.

3366. The lowest thirds of the bones of the left forearm and the os unciforme. A bullet fractured the third and fourth
f. 77. metacarpals, the external bones of the carpus, the styloid process of the ulna and the articular face of the radius. The specimen shows the fragments of the radius reunited to its extremity, with the inner fractured surfaces of both bones carious.

Private D. S., "K," 27th Indiana, 24: Allatoona, Ga., 25th May; admitted hospital, Nashville, 14th June; amputated in the lowest third, 24th June, 1864. Recovered.

Contributed by Surgeon R. L. Stanford, U. S. Vols.

1928. The left carpus and metacarpus. The index, metacarpal and several of the bones of the wrist were fractured
f. 78. by a conoidal ball and are more or less carious.

Corporal H. S. T., "D," 23d Kentucky: Chickamauga, 19th September; admitted hospital, Nashville, 11th November; amputated above the elbow for gangrene by Acting Assistant Surgeon W. H. Matlock, 17th; died exhausted, last of November, 1863.

Contributed by the operator.

See class **XXIII.** A. B.

3719. The lower portions of the bones of the left forearm, the carpus and metacarpus. Several of the carpal bones
f. 79. are fractured and the joint is disorganized by ulceration.

Private J. S., "E," 10th New York: Petersburg, 2d October; amputated, Beverly, N. J., 21st; died from pyæmia, 30th October, 1864.

Contributed by Assistant Surgeon C. Wagner, U. S. Army.

3517. The lower halves of the bones of the right forearm, with a portion of the carpal and two of the metacarpal bones.
f. 80. The joint is much disorganized and the bones are carious.

Private A. J. G., "I," 61st Pennsylvania, 27: admitted hospital, 11th May; amputated by Surgeon N. R. Mosely, U. S. Vols., 20th December, 1864.

Contributed by Acting Assistant Surgeon J. Walsh.

2554. The lower extremity of the right radius and portions of the second carpal row, all fractured.
f. 81. Second Lieutenant O. M. A., "K," 148th New York, 32: Cold Harbor, 4th June; admitted hospital, Washington, 10th; amputated in the lowest third of the forearm, for symptoms of tetanus, by Surgeon D. W. Bliss, U. S. Vols., 18th; died, 19th June, 1864.

Contributed by the operator.

4274. The bones of the left metacarpus, the lower extremities of the radius and ulna and a portion of the carpus. A
f. 82. conoidal ball entered at the styloid process of the ulna and passed obliquely through the wrist.

Private H. M. H., "K," 12th West Virginia, 29: New Market, 15th May; admitted hospital, Cumberland, 18th May, 1864; amputated by Surgeon J. B. Lewis, U. S. Vols. Recovered.

Contributed by the operator.

635. A portion of the metacarpus and the two lower thirds of the radius. The carpal extremities of the bones
f. 83. remaining are carious. The fracture was caused by shell.

Private A. A. B., "A," 49th New York: Antietam, 17th September; admitted hospital, Washington, 26th September, 1862; amputated, 3d January; discharged, 6th April, 1863.

Contributed by Surgeon O. A. Judson, U. S. Vols.

3180. The lower extremities of the bones of the left forearm and the remains of the carpal and metacarpal bones. All
f. 84. the bones, except the second metacarpal, are thoroughly carious.

Corporal G. S., "C," 64th New York, 31: Cold Harbor, 3d June; admitted hospital, Washington, 12th June; amputated at the lowest third of the humerus, 30th August, 1864; discharged the service, 19th January, 1865.

Contributed by Assistant Surgeon Philip C. Davis, U. S. Army.

2549. The index-metacarpal and portions of the metacarpal of the thumb and three carpal bones. The wrist has been
f 85. fractured by a conoidal ball.

Private A. B., "I," 2d Connecticut Heavy Artillery, 22: Cold Harbor, 3d June; admitted hospital, Alexandria, 6th; amputated in the middle third of the forearm, 10th June; discharged the service, 19th November, 1864.

Contributed by Surgeon E. Bentley, U. S. Vols.

752. The metacarpus, part of the carpus and the two lower thirds of the bones of the left forearm. Gunshot pene-
f. 86. trated the wrist, and the carpal bones remaining and the metacarpals are nearly destroyed by absorption. The extremities of the radius and ulna are carious.

Private W. S. D., "A," 76th Pennsylvania (?): Antietam, 17th September; amputated below the elbow for gangrene, Frederick, November, 1862. Died from secondary hæmorrhage, six days afterward.

Contributed by Assistant Surgeon J. H. Bill, U. S. Army.

See class **XXIII.** A. B.

3623. The lower extremities of the bones of the left forearm and parts of the unciform and trapezoid bones. A
f. 87. conoidal ball entered the head of the second metacarpal and passed out between the cuneiform and the extremity of the ulna, fracturing several of the carpal bones, the styloid process of the ulna and the extremity of the radius.

Private W. O. H., "G," 2d New York Heavy Artillery, 41: Petersburg, 16th June; admitted hospital, Philadelphia, 29th June; amputated, 7th July; died, 12th July, 1864.

Contributed by Acting Assistant Surgeon Edward R. Fell.

2755. The lower extremities of the bones of the right forearm, the carpus and metacarpus. Several of the carpal
f. 88. bones are shattered and all are carious. The proximal half of the third and the whole of the fourth metacarpal are missing.

Private J. U., "K," 62d Pennsylvania: admitted hospital, Philadelphia, 20th May; amputated in the middle third of the forearm for repeated secondary hæmorrhage after erysipelas, 6th June; died after recurrent secondary hæmorrhage, 8th June, 1864.

Contributed by Acting Assistant Surgeon A. A. Smith.

See class **XXIII.** A. A.

3629. The lowest thirds of the bones of the left forearm, the scaphoid, semilunar and parts of the cuneiform and
f. 89. pisiform and first metacarpal. The radius has been perforated just above the articulation and the wrist shattered, as the history says, by the same missile. A large amount of callus has been thrown out about the radius, but the track of the bullet is carious. The joint was completely anchylosed.

Private G. D. C., "K," 140th New York, 23: Wilderness, 5th May; admitted hospital, Philadelphia, 15th; amputated at the junction of the lower thirds of the humerus, for erysipelas, by Acting Assistant Surgeon L. Frank Etton, 15th September.

Contributed by Surgeon Joseph Hopkinson, U. S. Vols.

See class **XXIII.** A. a.

1705. The carpal extremities of the right radius, ulna and metacarpal bones and the remains of the carpus. The
f. 90. wrist was directly perforated by the accidental discharge of a musket upon the muzzle of which it was resting, and portions of but two bones remain in the specimen. All the articular surfaces are carious.

Private A. B., "D," 66th Indiana: wounded, 1st June; admitted hospital, 1st July; amputated at the shoulder-joint by Surgeon J. G. Keenan, U. S. Vols., for gangrene of the wound, abscess of the elbow and infiltration of pus to the middle third of the arm, 2d; died, 4th July, 1863.

Contributed by Acting Assistant Surgeon B. J. Bristol.

See class **V.** A. b. d.

3641. The right metacarpus, the second carpal row and the pisiform and the shattered extremities of the bones of the
f. 91. forearm. A conoidal ball passed directly through the wrist, producing much shattering, which resulted in great caries.

Private J. M. R., "E," 12th New Jersey, 33: Cold Harbor, 4th June; admitted hospital, Washington, 23d July; amputated junction lower thirds, 24th July; died exhausted, 7th August, 1864.

Contributed by Acting Assistant Surgeon M. Lampen.

2305. Four of the metacarpals and the first row of carpal bones. A conoidal ball, entering at the styloid process of the
f. 92. radius, passed transversely through the wrist.

Private O. K., "E," 3d New Hampshire, 33: Petersburg, 3d September; admitted hospital, Philadelphia, 12th; amputated in the middle third of forearm by Acting Assistant Surgeon W. P. Moon, 13th; died from pneumonia, 24th September, 1864.

Contributed by Acting Assistant Surgeon R. H. Longwill.

3673. The extremities of the bones of the right forearm and parts of the carpus and metacarpus. A bullet appears to
f. 93. have passed directly through and to have destroyed the carpus; the metacarpal bones and the extremities of the radius and ulna are carious.

Private D. S., "F," 71st Pennsylvania: Cold Harbor, 1st June; admitted hospital, Philadelphia, 13th June, 1864; amputated at the junction of the upper thirds by Acting Assistant Surgeon A. S. Uhler. Recovered.

Contributed by Surgeon Lewis Taylor, U. S. Army.

3329. The bones of the left forearm, metacarpus and first row of phalanges. The entire carpus is wanting, and all
f. 94. the bones of the specimen are more or less necrosed. The outer border of the radius is partially fractured, and the ulna is necrosed nearly to the elbow.

Private P. S., 16th Massachusetts, 40: Petersburg, 16th June; admitted hospital, Washington, 21st June; amputated in the lowest third of the arm by Acting Assistant Surgeon A. A. Cobb, 19th September, 1864; discharged the service, 16th March, 1865.

Contributed by the operator.

352. A ligamentous preparation of the left carpus and metacarpus and lower halves of the bones of the forearm.
f. 95. The carpus has been shattered by direct perforation, the scaphoid, pisiform, trapezium and trapezoid being the only bones that remain intact. None of the long bones were directly injured. Amputation was performed in the middle third.

Private J. T., "C," 78th Illinois, 31: accidentally wounded by a conoidal ball from his own piece, Louisville, Ky., September; admitted hospital, New Albany, Ind., 4th October; brachial artery ligated for secondary hæmorrhage, 15th; amputated for recurring hæmorrhage by Acting Assistant Surgeon J. Sloan, 17th October; discharged the service, 17th November, 1862.

Contributed by the operator.

49. The bones of the right hand and the lower portions of the radius and ulna. The most of the carpal bones are
f. 96. fractured by the direct passage of a bullet through them.

Private T. L., "D," 3d Wisconsin: Cedar Mountain, 9th August; admitted hospital, Alexandria, 12th, amputated by Acting Assistant Surgeon Geo. B. Mackenzie, 16th August; discharged, 14th October, 1862.

Contributed by the operator.

2026. The bones of the right hand and lower portion of the forearm. The carpus, which has been destroyed by a
f. 97. conoidal ball, is wanting. The fourth metacarpal bone is fractured near the phalangeal extremity. The missile is mounted with the specimen. This man was also wounded in the spine of the scapula.

Private N. McG., "B," 6th Maine, 23: Rappahannock Station, 7th November; admitted hospital, Washington, 9th November; amputated for secondary hæmorrhage by Acting Assistant Surgeon C. T. Trautman, 4th December, 1863. Recovered.

Contributed by Surgeon R. B. Bontecou, U. S. Vols.

See class **XXVII.** B. B. d.

2173. The lower portions of the bones of the left forearm, the carpus and the metacarpus. All the carpal bones are
f. 98. shattered except the scaphoid, trapezium and trapezoid. The articular surface of the radius is chipped, and a fissure extends three inches up the shaft.

Sergeant H. J., "K," 137th New York, 23: Wahatchie, 28th October; admitted hospital, gangrenous, Nashville, 6th November; amputated in the middle third, 8th; died from pyæmia, 22d November, 1863.

Contributed by Surgeon John W. Foye, U. S. Vols.

188. The lower portions of the right forearm, the metacarpus and the scaphoid, trapezium and trapezoid. The
f. 99. remaining carpal bones, the base of the fourth metacarpal and the articulating surfaces of the radius and ulna have been carried away by gunshot. The most of the articular surfaces are carious.

Private C. F. C., "B," 13th Ohio Cavalry, 21: Dinwiddie C. H., Va., 31st March; admitted hospital, Washington, 4th April; amputated in the middle third of the forearm by Acting Assistant Surgeon H. Craft, 19th April; discharged the service, 20th July, 1865.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

For other illustrations, see 2773, **IX.** A. B. c. 2; 1083, **XII.** A. B. c. 10; 2745, **XXII.** A. B. c. 12.

C. Diseases.

1228. The left hand, wrist and two lower thirds of the bones of the forearm. Nearly the entire carpus has been destroyed
C. 1. by absorption, all the metacarpal bones are diseased and the extremity of the radius is carious. This condition is the result of a six months' palmar abscess, without assignable cause.

Private S. C., "H," 2d Maryland, 22: abscess commenced, July; admitted hospital, Washington, 17th December, 1862; amputated at the junction of the upper thirds of the forearm by Acting Assistant Surgeon George McCay, 9th February, 1863. Recovered.

Contributed by the operator.

905. Fragments removed from the left wrist for scrofulous caries. The extremities of the radius and ulna and a part
C. 2. of the scaphoid were removed by the bone forceps through the opening of a long-existing abscess.

J. W., colored, 44: the disease is supposed to be the result of a sprain received about twenty months previously; excised by Brevet Lieutenant Colonel Robert Reyburn, Surgeon, U. S. Vols., Washington, 30th January; every prospect of a successful termination, 21st February, 1867.

Contributed by the operator.

X. INJURIES AND DISEASES OF THE BONES OF THE HAND, NOT INVOLVING THE CARPAL ARTICULATIONS.

- **A.** Gunshot Injuries.
  - **A.** Primary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Excisions.
    - d. Disarticulations and amputations in the hand.
    - e. Amputations in the forearm or arm.
    - f. Other operations.
  - **B.** Secondary Condirions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Excisions.
    - d. Disarticulations and amputations in the hand.
    - e. Amputations in the forearm or arm.
    - f. Other operations.
    - g. Stumps
    - h. Sequestra.
- **B.** Injuries not caused by Gunshot.
  - **A.** Primary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Dislocations.
    - d. Excisions.
    - e. Disarticulations and amputations in the hand.
    - f. Amputations in the forearm or arm.
    - g. Other operations.
  - **B.** Secondary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Dislocations.
    - d. Excisions.
    - e. Disarticulations and amputations in the hand.
    - f. Amputations in the forearm or arm.
    - g. Other operations.
    - h. Stumps.
    - i. Sequestra.
- **C.** Diseases.

X. BONES OF THE HAND.

A. Gunshot Injuries.

A. Primary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Excisions.
- d. Disarticulations and amputations in the hand.
- e. Amputations in the forearm or arm.
- f. Other operations.

d. Disarticulations and Amputations in the Hand.

3744. A portion of the shaft and two small fragments of the metacarpal bone of the forefinger, amputated after shattering
d. 1. by a conoidal ball accidentally discharged from the subject's own piece.

Private C. S., "A," 118th U. S. Colored Troops: wounded and amputated, Twenty-fifth Corps Field Hospital, Va., 4th February, 1865.

Contributed by Surgeon Norton Folsom, 45th U. S. Colored Troops.

3745. Six fragments, representing the last three fingers of the right hand, much shattered and amputated.
d. 2. Private R. W. C., "F," 57th Indiana, 34: Franklin, Tenn., 30th November; admitted hospital, Nashville, 1st December; amputated, 2d December, 1864. Recovered.

Contributed by Acting Assistant Surgeon H. C. May.

231. Portions of the metacarpal bone of the right middle finger and the corresponding phalanx, amputated for fracture.
d. 3. Corporal I. P. M., "A," 6th U. S. Colored Troops: amputated by Dr. W. B. Smith; died of pyæmia, Portsmouth, Va., 16th July, 1864.

Contributed by the operator.

For other illustrations, see 3617, **IX.** A. B. f. 38; 3656, **IX.** A. B. f. 39; 1709, **IX.** A. B. f. 47; 1115, **X.** A. B. d. 15; 1708, **X.** A. B. e. 6; 2450, **X.** A. B. f. 1.

e. Amputations in the Forearm or Arm.

3210. The right carpus and metacarpus. The proximal halves of the second and third metacarpal bones were carried
e. 1. away, and the testicles and right thigh wounded at the same time. The soft parts of the wrist and hand were much lacerated.

Recruit T. F., 16th Pennsylvania, 24: wounded and admitted hospital, Washington, 8th September; the arm was amputated in the lowest third and both testicles were removed, 9th September; died exhausted, 16th October, 1864.

Contributed by Assistant Surgeon Philip C. Davis, U. S. Army.

See class **XX.** A. A. b.

B. Secondary Conditions.

B. Secondary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Excisions.
- d. Disarticulations and amputations in the hand.
- e. Amputations in the forearm or arm.
- f. Other operations.
- g. Stumps.
- h. Sequestra.

b. Complete Fractures.

220. The first phalanx of the right index finger, partially consolidated after shattering by pistol shot. The bone is
b. 1. much shattered, the new tissue spongy, and the internal portion is carious.

From a Rebel medical officer who was wounded at Manassas, probably 29th August, 1862, and died in Richmond, 6th July, 1863.

Contributed by Acting Assistant Surgeon F. Schafhirt.

For other illustrations, see 2773, **IX.** A. B. c. 2

c. Excisions.

438. Twelve small fragments, representing portions of the right metacarpus, excised after fracture by a conoidal ball.
c. 1. Sergeant J. M., "A," 1st Delaware: Antietam, 17th September; admitted hospital, Frederick, 21st September; excised by Surgeon H. S. Hewit, U. S. Vols., 2d October, 1862. Recovered with a useful hand.
Contributed by the operator.

For other illustrations, see 4072, **IX.** A. B. f. 34; 2477, **IX.** A. B. f. 48.

d. Disarticulations and Amputations in the Hand.

2318. A fragment of bone, representing the base of the right ring finger, disarticulated at the metacarpus.
d. 1. Private E. C., "D," 111th New York: admitted hospital and amputated by Surgeon N. R. Mosely, U. S. Vols., Washington, 22d May; deserted, 13th July, 1864.
Contributed by the operator.

2372. The second, and fragments apparently representing portions of the third, phalanges of the left little finger.
d. 2. Sergeant W. R., "I," 121st New York, 21: Spottsylvania, 13th May; admitted hospital, Washington, 23d; amputated by Surgeon N. R. Mosely, U. S. Vols., 24th May; returned to duty, 12th August, 1864.
Contributed by the operator.

2389. Four small fragments, representing the last two phalanges of the right little finger, shattered by a conoidal ball.
d. 3. Private H. B., "B," 37th Michigan, 19: Wilderness, 6th May; admitted hospital, Washington, 16; amputated by Surgeon N. R. Mosely, U. S. Vols., 19th May; transferred North, 10th June, 1864.
Contributed by the operator.

2365. Three fragments of bone, representing a portion of the right index finger, shattered by a conoidal ball and
d. 4. amputated.
Private C. H. M., "H," 28th Massachusetts, 16: Spottsylvania, 14th May; admitted hospital, Washington, 17th; amputated by Surgeon N. R. Mosely, U. S. Vols., 24th May; deserted, on furlough, 13th July, 1864.
Contributed by the operator.

2335. The first phalanx of the right ring finger, fractured near the base and amputated.
d. 5. Private W. S., "L," 8th New York Heavy Artillery, 22: Spottsylvania, 19th May; admitted hospital, Washington, 22d; amputated by Surgeon N. R. Mosely, U. S. Vols., 23d May; furloughed, 1st June, 1864.
Contributed by the operator.

2336. The first phalanx of the left middle finger and two fragments, as if portions of the metacarpus.
d. 6. Private P. T. D., "F," 21st Massachusetts: Spottsylvania, 19th May; admitted hospital, Washington, 22d; amputated by Surgeon N. R. Mosely, U. S. Vols., 23d May; deserted, on furlough, 13th July, 1864.
Contributed by the operator.

2352. The second phalanx of the right index finger, partially fractured near its head and amputated, probably by
d. 7. disarticulation.
Private T. B., "E," 60th Ohio, 21: Spottsylvania, 10th May; admitted hospital, Washington, 13th; amputated by Surgeon N. R. Mosely, U. S. Vols., 23d May; returned to duty, 12th August, 1864.
Contributed by the operator.

2703. The first and a part of the second phalanges of a finger. A conoidal ball, compressed at its apex, is attached.
d. 8. Received after the Wilderness.
See class **XXVII.** B. B. d.

3167. One bone and three fragments, probably representing the first phalanges of the thumb and index finger of the
d. 9. right hand.
Private M. S., "H," 52d New York, 43: a conoidal ball fractured the first and second metacarpals, 6th June; admitted hospital and fractured bone removed, Washington, 22d June, 1864; discharged the service, 6th February, 1865.
Contributed by Surgeon N. R. Mosely, U. S. Vols.

2390. The first and part of the second phalanges of the right index finger, disarticulated at the metacarpus for fracture
d. 10. by a conoidal ball near the second joint.
Private J. H., "D," 84th Pennsylvania, 18: North Anna, 25th May; admitted hospital, Washington, 29th May; amputated by Surgeon N. R. Mosely, U. S. Vols., 1st June, 1864; discharged the service, 28th March, 1865.
Contributed by the operator.

2316. The ring and middle fingers of the left hand, in six fragments.
d. 11. Private C. S., "D," 4th Vermont, 34: Wilderness, 5th May; fingers, with portions of metacarpal attachments, amputated by Surgeon N. R. Mosely, U. S. Vols., Washington, 21st May; discharged the service, 16th December, 1864.
Contributed by the operator.

1437. A finger, apparently the left index, disarticulated at the metacarpo-phalangeal articulation for a perforating
d. 12. fracture at the first phalangeal articulation.
Contributor and history unknown.

2515. The second and third fingers of the right hand, amputated in the metacarpus for gunshot fracture in the first
d. 13. phalanges. Both fractures are consolidated, but the presence of caries required the amputation. The metacarpo-phalangeal articulations appear anchylosed.
Private J. C. F., "H," 8th New York Heavy Artillery, 20: Cold Harbor, 3d June, 1864; admitted hospital, Albany, 7th July, 1865; amputated, 26th September, 1865.
Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

135. A ligamentous preparation of the left carpus and hand. The third and fourth metacarpal bones are shattered near
d. 14. the phalangeal articulation, and the shaft of the first phalanx of the ring finger is obliquely fractured. Disarticulation at the radio-carpal articulation was probably performed.
Private J. H. H., "D," 14th Connecticut: probably Antietam, 17th September; admitted hospital, Washington, 23d; amputated for tetanic symptoms, 28th; died from tetanus, 30th September, 1862.
Contributed by Assistant Surgeon C. A. McCall, U. S. Army.
See class **IX.** A. B. e.

1115. A wet preparation of the first phalanx and head of the metacarpal bone of the middle finger, amputated for
d. 15. disease of the phalanx following disarticulation for gunshot. The specimen shows the bone denuded of periosteum and roughened.
Private G. M., 5th New York: third phalanx shattered and amputated on the field, Fredericksburg, 13th December; amputated by Surgeon S. D. Freeman, U. S. Vols., Baltimore, 27th February, 1863.
Contributed by the operator.
See class **X.** A. A. d.

1113. A wet preparation of the index finger and head of the metacarpal bone of the left hand, amputated for anchylosis
d. 16. at the second phalangeal articulation, with distortion and inability to withstand pressure.
Private W. B. W., "F," 130th Pennsylvania, 22: Fredericksburg, 13th December; admitted hospital, Baltimore, 20th December, 1862; amputated by Surgeon Lavington Quick, U. S. Vols., 4th May; returned to duty, 14th May, 1863.
Contributed by the operator.

2310. A wet preparation of the middle finger, amputated in the metacarpal bone after shattering of the first phalanx,
d. 17. the particles of which are necrosed.
Contributed by Surgeon N. R. Mosely, U. S. Vols.

2605. A wet preparation of part of the second finger of the left hand, which was amputated for fracture in the second
d. 18. joint and was carious at the time of operation.
Private R. H., "C," 13th Pennsylvania Cavalry: wounded, June; amputated with successful result, Philadelphia, 15th July, 1863.
Contributed by Acting Assistant Surgeon P. Middleton.

For other illustrations, see 3194, **VIII.** A. B. g. 5; 2089, **X.** C. 1; 2267, **XXII.** A. B. c. 4; 2610, **XXII.** A. B. c. 5; 1793, **XXII.** A. B. c. 6; 503, **XXII.** A. B. c. 7.

e. Amputations in the Forearm or Arm.

3005. The right carpus and metacarpus, with portions of the phalanges. The middle metacarpal bone was accidentally
e. 1. fractured by a conoidal ball, and its distal half is missing.
Private W. P., "H," 65th Indiana, 28: near Knoxville, Tenn., 7th March; amputated in the lowest third of the humerus on account of gangrene, by Surgeon G. Grant, U. S. Vols., 14th April, 1864. Recovered.
Contributed by the operator.
See class **XXIII.** A. B.

89. A ligamentous preparation of the right hand and wrist, amputated in the lowest third of the forearm for
e. 2. comminuted fracture in the third and fourth metacarpals and laceration of the soft parts.

Private J. J., 9th New Hampshire: Antietam, 17th September; amputated, Washington, 25th September; furloughed for sixty days, 10th November, 1862.

Contributed by Acting Assistant Surgeon P. Middleton.

3620. The left carpus and metacarpus. The distal portions of the third and fourth metacarpals were carried away by
e. 3. a conoidal ball, and the extremities, as presented in the specimen, are carious.

Corporal B. R., "D," 59th Massachusetts, 35: Petersburg, 17th June; amputated in the lowest third of the forearm by Acting Assistant Surgeon W. P. Moon, Philadelphia, 12th August; discharged the service, 14th December, 1864.

Contributed by Surgeon Joseph Hopkinson, U. S. Vols.

2491. The lower halves of the bones of the left forearm, the carpus and the metacarpal bones, except the third.
e. 4. Corporal G. W. S., "G," 1st Maryland: third metacarpal fractured, Spottsylvania, 19th May; amputated in the middle third of the forearm by Acting Assistant Surgeon H. M. Dean, 3d June; discharged the service, 24th September, 1864.

Contributed by the operator.

3491. The lower halves of the bones of the right forearm, amputated for gangrene after fracture of the metacarpus.
e. 5. The lower extremities are carious, and the ulna is slightly eroded the length of the specimen.

Private R. H., "F," 77th Pennsylvania: fourth and fifth metacarpals fractured on picket, 14th July; third finger and metacarpal removed; admitted hospital, Nashville, 15th July; fourth and fifth metacarpals removed, 5th August; forearm amputated, 10th; died from pyæmia, 14th August, 1864.

Contributed by Acting Assistant Surgeon John E. Link.

1708. The left hand and wrist. The ring and little fingers were carried off by a conoidal ball and amputated at the
e. 6. metacarpo-phalangeal articulation on the field.

Private J. B., "C," 22d Iowa: Vicksburg, 22d May; admitted hospital, Memphis, 4th June; amputated above the elbow for phlegmonous erysipelas, 29th June, 1863. Recovered.

Contributed by Surgeon J. G. Keenon, U. S Vols.

See classes **X.** A. a. d.; **XXIII.** A. a.

850. A ligamentous preparation of the left hand and wrist, with the shaft of the fifth metacarpal bone shattered,
e. 7. apparently amputated in the lowest third of the forearm.

Contributed by Surgeon John E. Summers, U. S. Army.

495. A ligamentous preparation of the right hand, wrist and the lower extremities of the bones of the forearm. The
e. 8. fourth and fifth metacarpals and the first phalanges of the corresponding fingers are shattered. The middle metacarpal is transversely fractured. Amputation was probably performed in the lowest third of the forearm.

Contributed by Assistant Surgeon W. Moss, U. S. Vols.

f. Other Operations.

2450. A ligamentous preparation of the left hand, wrist and lowest thirds of the bones of the forearm. The fifth
f. 1. metacarpal bone has been amputated in its middle and the fourth finger disarticulated at the metacarpal joint. The last three metacarpal bones are necrosed on their dorsal surfaces.

Private P. McN., "A," 2d New York Artillery, 36: shell fracture, Petersburg, 16th June; first operation performed in the field, 19th; admitted hospital, Chester, Penna., 28th June; amputated in the lowest third of the forearm by Acting Assistant Surgeon W. C. Merillat, 11th August, 1864.

Contributed by Brevet Lieutenant Colonel Thos. H. Bache, Surgeon, U. S. Vols.

See class **X.** A. a. d.

B. Injuries not caused by Gunshot.

B. Secondary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Dislocations.
- d. Excisions.
- e. Disarticulations and amputations in the hand.
- f. Amputations in the forearm or arm.
- g. Other operations.
- h. Stumps.
- i. Sequestra.

b. Complete Fractures.

See 3616, **IX.** A. B. f. 41.

e. Disarticulations and Amputations in the Hand.

3266. The greater portion of the left index, middle and ring fingers crushed by a naval howitzer.
e. 1. Gunner B. P. A., U. S. Ship "Shenandoah": disarticulated, Norfolk, Va., 13th August, 1864.
Contributed by Surgeon Wm. Johnson, jr., and Passed Assistant Surgeon W. K. Schofield, U. S. Navy.

For other illustrations, see 847, **XXIII.** B. D. 7.

C. Diseases.

2089. The third metacarpal bone of the left hand, with an osteo-sarcoma three fourths of an inch in diameter at its head.
C. 1. Private J. G., Tobin's Tennessee Battery, (Rebel,) 31: first phalanx of left middle finger fractured by a conoidal ball, Vicksburg, 2d May; amputated, 5th July; admitted hospital, Memphis, 4th September, 1863; metacarpal bone and attached tumor removed by Assistant Surgeon J. C. H. Happersett, U. S. Army. Returned to duty, (? confinement,) 10th January, 1864.
Contributed by the operator.
See class **X.** A. B. d.

For other illustrations, see 1572, **XXIV.** A. A. b. 1; 2257, **XXIV.** A. A. b. 2.

XI. INJURIES AND DISEASES OF THE BONES OF THE PELVIS, NOT INVOLVING THE HIP JOINT.

- **A.** Gunshot Injuries.
  - **A.** Primary Conditions.
    - a. Contusions and partial fractures
    - b. Complete fractures.
    - c. Operated upon.
  - **B.** Secondary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Operated upon.
    - d. Secondarily fatal without operation.
    - e. Sequestra.
- **B.** Injuries not caused by Gunshot.
  - **A.** Primary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Operated upon.
  - **B.** Secondary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Operated upon.
    - d. Secondarily fatal without operation.
    - e. Sequestra.
- **C.** Diseases.

XI. BONES OF THE PELVIS.

A. Gunshot Injuries.

A. Primary Conditions. { a. Contusions and partial fractures. b. Complete fractures. c. Operated upon.

b. Complete Fractures.

2869. The bones of the pelvis showing a perforation of the right ilium just above the ischiatic notch. The missile was
b. 1. probably fired at short range. The wound of the outer table is perfectly smooth and appears to have been made by a .54 bullet; the inner table is broken over the space of two inches square. There is a fracture of the anterior superior spinous process of the left ilium, but whether occasioned by the escaping bullet or due to exposure after death is undetermined.

From the skeleton of a white person who was murdered in the Sioux Massacre, in Minnesota, in 1862, found on the prairie four miles from Fort Ridgely, Minn., June, 1864.

Contributed by Acting Assistant Surgeon Alfred Muller.

For other illustrations, see 3810, **III.** A. a. b. 11.

B. Secondary Conditions. { a. Contusions and partial fractures. b. Complete fractures. c. Operated upon. d. Secondarily fatal without operation. e. Sequestra.

a. Contusions and Partial Fractures.

3401. The right ischium, showing a partial fracture of the external surface of the body just above the tuberosity.
a. 1. The greater trochanter of the right femur was also fractured by the bullet which passed through the glutæi of both sides.

Private T. C., "I," 27th Pennsylvania: Mission Ridge, Tenn., 25th November, 1863; died near Chattanooga, 28th February, 1864.

Contributed by Assistant Surgeon John D. Johnson, U. S. Vols.

987. A portion of the left ischium, contused and carious on its inferior posterior surface from the passage of a
a. 2. conoidal ball which entered at the sacro-iliac symphysis, passed through the glutæi muscles on the dorsum ilii and was removed from the perineum within an inch of the anus.

Private J. B., "F," 131st Pennsylvania, 29: Fredericksburg, 13th December; admitted hospital, Washington, 18th December, 1862. Died from hæmorrhage and profuse suppuration.

Contributed by Acting Assistant Surgeon W. A. Harvey.

1743. a. 3. The iliac portion of the left acetabulum and adjacent bone, with a conoidal ball which has contused the internal surface of the ilium just below and behind the anterior inferior spinous process.

Sergeant W. L., "D," 10th New York Cavalry, 25: Bristoe Station, Va., 14th October; admitted hospital, Alexandria, 15th; died from pyæmia, 21st October, 1863.

Contributed by Surgeon Edwin Bentley, U. S. Vols.

See class **XXVII.** B. B. d.

819. a. 4. A portion of the right ischium, showing a round ball, which entered the groin near the femoral artery, firmly embedded in the tuberosity. A small fragment of bone just above the missile, and against which it appears to have first impinged, is necrosed. The ischium is not completely fractured, but the region of lodgement is much splintered.

Private W. L., "E," 23d North Carolina, (Rebel,) 24: South Mountain, 14th September; died while under the influence of chloroform, Frederick, 28th October, 1862.

Contributed by Acting Assistant Surgeon Redfern Davies.

See class **XXVII.** B. B. d.

3819. a. 5. A portion of the right pubes, exhibiting a carious condition of the horizontal ramus after partial fracture by gunshot.

Private D. L., "F," 23d Ohio: admitted hospital, Frederick, 29th August; died from pyæmia, 20th September, 1864.

Contributed by Acting Assistant Surgeon R. W. Mansfield.

1012. a. 6. The right ischium and pubes. The inner face of the ischium above the tuberosity and below the acetabulum is gouged by the passage of a conoidal ball which entered the right groin three inches from the spine of the pubes, passed through the obturator foramen and emerged from the right buttock one and a half inches from the fissure of the nates. The fractured surface is carious; the outer border has a slight osseous deposit upon it.

Private M. L., "K," 18th Wisconsin: Corinth, Miss., 3d October; admitted hospital, St. Louis, 30th November; died from pyæmia, 22d December, 1862.

Contributed by Surgeon John T. Hodgen, U. S. Vols.

3751. a. 7. A portion of the right pubes, showing a deeply grooved fracture of the horizontal ramus from a conoidal bullet that entered two inches to the left of the coccyx and emerged two inches above the pubes and to the right of the median line. Fæces and urine escaped from the wound of exit.

Sergeant H. B., "K," 5th Minnesota, 21: wounded and admitted hospital, Nashville, 16th December; died, 29th December, 1864.

Contributed by Acting Assistant Surgeon H. C. May.

See 3752, **XX.** A. B. a. 18.

1212. a. 8. The left pubes and ischium. A bullet struck the pubes just externally to the symphysis, at the junction of the rami, contusing and slightly grooving the bone, and then, passing across the obturator foramen, partially fractured the body of the ischium on its internal border just below the acetabulum and escaped in the gluteal space. A fissure extends across the lower segment of the acetabulum. The fractured bone is somewhat necrosed.

Private F. G., "K," 105th Pennsylvania, 28: Chancellorsville, 3d May; admitted hospital, Washington, 9th; died, 21st May, 1863. There was no peritonitis.

Contributed by Surgeon O. A. Judson, U. S. Vols.

See class **XII.** A. B. a.

882. a. 9. The left ischium. On the outer surface of the tuberosity, and embracing half its thickness, is a circular portion of necrosed bone with a clearly defined line of separation having a diameter of one and three-fourths inches, the evident result of contusion. Possibly the case of

Private C. W. M., "B," 14th North Carolina, (Rebel,) 21: bullet entered the cleft of the nates one inch above the anus, grazed the tuber ischii and ploughed through the great trochanter, splitting off the the head and neck of the femur, Antietam, 17th September; admitted hospital, Frederick, 29th September; died, 17th October, 1862.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

934. a. 10. The left os innominatum and upper portions of the femur. A conoidal ball entered between the anterior spinous processes of the ilium and escaped just exteriorly to the lowest third of the sacrum. The exterior surface of the ilium, one inch above the acetabulum, is grooved by the bullet. The walls of its track are thickened by new bone, but interiorly a sinus has perforated the bone nearly three inches and has opened by ulceration the fundus of the acetabulum.

Private J. D., "G," 51st New York: Antietam, 17th September; admitted hospital, Frederick, 2d October; convalesced sufficiently to walk about until after receiving a severe fall, 14th December; died, 24th December, 1862.

Contributed by Assistant Surgeon Wm. Notson, U. S. Army.

See class **XII.** A. B. c.

b. Complete Fractures.

988. The superior two-thirds of the right ilium. A buckshot has perforated the dorsum about its centre, and another
b. 1. lodged in the outer border of the crest near the superior extremity of the insertion of the latissimus dorsi. The borders of the perforating fracture are necrosed, and the bony tissue in which the ball lodged is carious.

Private I. N., "A," 155th Pennsylvania, 23: admitted hospital, Washington, 13th December, 1862; died, January, 1863.
Contributed by Acting Assistant Surgeon W. A. Harvey.

1656. The posterior portion of the right ilium, the superior three-fourths of the sacrum, the fifth lumbar vertebra and
b. 2. a battered conoidal ball. The missile shattered the crest of the right ilium just above the posterior superior spinous process, fractured the spine of the fifth lumbar vertebra and lodged below the crest of the left ilium.

Private J. C. M., "G," 116th Pennsylvania, 18: Ream's Station, 25th August; admitted hospital, Washington, 28th August; died, 7th September, 1864.
Contributed by Acting Assistant Surgeon H. G. Bates.
See classes **III.** A. B. a.; **XXVII.** B. B. d.

421. A fragment, about one inch square, carious on its spongy surface, from the ilium.
b. 3. Private D. R., "H," 22d Massachusetts: admitted hospital, Baltimore, 21st July; specimen removed, 5th August; discharged the service, 21st October, 1862.
Contributed by Surgeon L. Quick, U. S. Vols.

4076. The anterior halves of the ossa innominata. The left pubic bone is fractured just below the symphysis by a
b. 4. bullet which cut the membranous portion of the urethra and escaped from the right nates. The right ischium is fractured, but this injury was probably done in mounting the specimen.

Private H. C., "H," 15th New York Heavy Artillery, 29: admitted hospital, Washington, 4th April; died from exhaustion, 14th April, 1865.
Contributed by Acting Assistant Surgeon L. M. Osmun.

3408. The superior portion of the left ilium, with its crest fractured for four inches by a conoidal ball which entered at
b. 5. its highest point and emerged two inches to the right of the spinal column. The abdominal cavity was not penetrated by the missile, but suppuration extended to the outer coat of the intestine.

Private D. G., "F," 56th Pennsylvania: Petersburg, 27th October; admitted hospital, Alexandria, 2d November; died, 13th November, 1864.
Contributed by Surgeon Edwin Bentley, U. S. Vols.

1519. The sacrum and posterior portion of the left ilium. A portion of the ilium in the region of the posterior spines
b. 6. has been carried away by a fragment of shell, and the neighboring bone is necrosed.
Contributed by Surgeon John A. Lidell, U. S. Vols.

431. A fragment, three-fourths of an inch square, from the ilium. The laminated surface appears partially fractured,
b. 7. as if by a nearly spent ball.

Private J. A. A., "G," 61st New York: admitted hospital, Baltimore, 3d July; specimen removed, 12th August; discharged the service, 16th September, 1862.
Contributed by Surgeon L. Quick, U. S. Vols.

3532. The sacrum and right ilium. The spongy portion of the ilium near the sacral junction is fractured over a space
b. 8. one and a half inches square, and the sacrum is fractured at the second intervertebral notch, as though by the impact of a ball.

Sergeant W. S., "I," 109th New York, 24: Wilderness, 5th May; treated at Fredericksburg; admitted hospital, Washington, 26th; died of pyæmia, 27th May, 1864.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.

4258. A wedge-shaped portion of the sacrum, showing a fracture into the vertebral canal at the second sacral vertebra.
b. 9. The first and second spinous processes have been broken away.
Private W. M. R., "F," 58th Virginia, (Rebel,) 22: Winchester, 20th July; admitted hospital, Cumberland, 23d July; died from tetanus, 8th August, 1864.
Contributed by Surgeon J. B. Lewis, U. S. Vols.

3001. A sacrum, perforated by a missile passing obliquely from the left which entered near the median line at the
b. 10. junction of the second and third vertebræ and escaped into the pelvis through the right portion of the second vertebra. The sacrum was completely transversely fractured at that point.

Private P. McC., "H," 1st Louisiana Cavalry: Carrion Crow Bayou, La., 3d November; admitted hospital, New Orleans, 8th; died, 22d November, 1863.
Contributed by Assistant Surgeon P. S. Conner, U. S. Army.

3900. The anterior half of the right innominatum, comminuted at the anterior superior process of the ilium, where a
b. 11. wedge-shaped fracture, two inches in depth by the same base, with loss of substance, has been caused by a conoidal ball. The fractured edges are torn and carious. On both surfaces is a layer of periosteal deposit nearly separated. The bone immediately adjacent to the fracture is necrosed and partly detached.

Private F. I. I., "E," 31st Georgia, (Rebel,) 18: Monocacy, 9th July; admitted hospital, Frederick, 10th July; died from peritonitis, 10th September, 1864.

Contributed by Acting Assistant Surgeon T. E. Mitchell.

1060. The right ischium, badly fractured between the acetabulum and the tuberosity by a bullet which passed through
b. 12. the penis and the right testicle and escaped on the right side near the sacrum. The shattered bone is carious, and is much diminished by the absorption and loss of fragments.

Private J. L. V. O., "K," 14th Connecticut, 37: Fredericksburg, 13th December; admitted hospital, Washington, 26th December, 1862; died from pleurisy, 10th April, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

985. The posterior superior half of the left ilium, perforated by a conoidal ball just above the sacral articulation.
b. 13. The external fracture embraces nearly two square inches of surface, and the internal fracture nearly four square inches. One square inch of bone is missing, and the fractured portion of the inner table is bent inward. The border of the fracture is necrosed.

Private R. H. R., "H," 24th New Jersey: Fredericksburg, 13th December; admitted hospital, Washington, 17th; ball extracted, 20th; died, 28th December, 1862.

Contributed by Acting Assistant Surgeon W. A. Harvey.

3531. The left ilium, obliquely perforated by a conoidal ball through the posterior superior spinous process.
b. 14. Private B. M. P., "I," 121st Ohio, 21: Wilderness, 6th May; admitted hospital, Washington, 26th; died from pyæmia, 28th May, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

2542. The sacrum, transversely perforated from left to right at the second intervertebral notch by a ball which, battered,
b. 15. is mounted at the place of lodgement. The fracture to the sacrum is extensive. There was paralysis of the bladder and rectum, but none of the lower extremities.

Private P. K., "G," 91st New York: Southside R. R., 1st April; died, Washington, 8th April, 1865.

Contributed by Assistant Surgeon Wm. F. Norris, U. S. Army.

See class **XXVII.** B. B. d.

3826. The sacrum and left os-innominatum. A conoidal ball entered just above the anterior superior spinous process,
b. 16. passed downward, backward and inward, struck the superior border of the great ischiatic notch and fractured the ilium, and passed out through the left side of the fourth and fifth bones of the sacrum. Nearly two square inches of the inner surface of the ilium, just anterior to the sacral articulation, is wanting, a longitudinal fracture extends three inches toward the crest of the ilium, and a fissure two inches toward the anterior superior spine.

Private A. W. P., "F," 3d Vermont, 21: Boonsboro', Md., 10th July; admitted hospital, Frederick, 12th; died from pyæmia, 22d July, 1863.

Contributed by Acting Assistant Surgeon W. S. Adams.

4171. A ligamentous preparation of the bones of the pelvis and a conoidal ball. The missile entered from the front,
b. 17. striking the descending ramus of the right pubes just below the symphysis, contusing the corresponding bone on the left side, passing over the membranous portion of the urethra, striking against and knocking off a fragment of the spine of the ischium, impinging on the sacrum at the insertion of the coccygeus and finally lodged in the glutæus maximus.

Private D. D., "D," 14th Connecticut, 22: Hatcher's Run, 25th March; admitted hospital, Washington, 30th March; died from pyæmia, 25th April, 1865.

Contributed by Surgeon Benjamin Wilson, U. S. Vols.

See class **XXVII.** B. B. d.

1245. The sacrum and adjoining portion of the right ilium. A conoidal ball from the rear perforated the third sacral
b. 18. vertebra at its junction with the ilium, making a circular opening rather more than an inch in diameter, whose edges internally attain a twofold circumference. The ball, which is attached, was found after death embedded in clothing just within the pelvis, none of the viscera of which were injured. The case is remarkable for the absence of peritonitis and paralysis.

Private P. C., "E," 73d Pennsylvania: Chancellorsville, 3d May; admitted hospital, Washington, 7th; died exhausted, 22d May, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See classes **XXVII.** B. B. d.; **XXVII. B′. B′.**

3568. The sacrum, perforated a little to the right of the median line at the junction of the fourth and fifth vertebræ.
b. 19. The internal wound is the larger. The missile, a conoidal ball, was found in two pieces in the sacro-ischiatic notch.

Private G. F., "A," Purnell Legion, Maryland Volunteers, 23: wounded, 2d June; admitted hospital, Washington, and died from pyæmia, 12th June, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

1353. The sacrum and posterior portion of the left ilium. The ilium has been grooved on its posterior surface between
b. 20. its two spines, by a bullet which appears to have entered the pelvis through the second intervertebral foramen of the sacrum.

Contributor and history unknown.

172. The right os innominatum. A conoidal ball has struck the crest of the ilium just above the anterior superior
b. 21. spinous process and passed down the bone in its own plane, tearing a channel three inches in length by one in width, and firmly impacting itself just above and internal to the acetabulum, into which a fissure extends. The borders of the fracture are necrosed, and, on the inner surface, fringed with callus.

Contributor and history unknown.

See class **XXVII.** B. B. d.

3975. A wet preparation of the anterior portion of the pubes and the genito-urinary apparatus. A round bullet entered
b. 22. at the tuberosity of the right ischium and splintered its lower surface, the descending ramus of the left pubes was shattered, the bladder was opened and the ball escaped just above the root of the penis. The bony track of the ball is necrosed, and fragments of bone are impacted in the urethra near the neck of the bladder.

Private F. P., "K," 6th Georgia, (Rebel,) 23: Antietam, 17th September; admitted hospital, Frederick, 4th October, 1862; died, 29th January, 1863.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

See class **XX.** A. B. a.

3813. The left os innominatum and sacrum. The posterior superior third of the ilium was fractured by a fragment of
b. 23. shell. One line of fracture extends from the posterior inferior spinous process to the crest two inches behind the anterior superior spinous process. The fragment thus broken off is bisected by a fracture running at right angles, and of the posterior fragment the inferior half is missing. The missile was shell.

Corporal N. M., "C," 22d Pennsylvania Cavalry, 21: Martinsburg, 3d July; admitted hospital, Frederick, 5th; died after secondary hæmorrhage, 23d July, 1864.

Contributed by Acting Assistant Surgeon J. C. Shimer.

230. Nearly the right half of the sacrum, much shattered in the second and adjoining bones, as if by a bullet which
b. 24. entered from the rear.

Contributed by Surgeon Charles Page, U. S. Army.

1642. The sacrum, fractured, with loss of substance, at the junction of the fourth and fifth vertebræ, by the transverse
b. 25. passage of a bullet which entered just above and behind the left greater trochanter. The fractured bones are carious, and the inner face of the sacrum has a slight osseous deposit.

Corporal A. E. C., "H," 110th Pennsylvania, 18: Chancellorsville, 3d May; in the hands of the enemy and neglected nine days; admitted hospital, Washington, 14th June; died exhausted, without peritonitis, 9th July, 1863.

Contributed by Acting Assistant Surgeon Carlos Carvallo.

2902. The sacrum and fifth lumbar vertebra. A conoidal ball, which entered at the second intervertebral foramen on
b. 26. the left side of the sacrum, is lodged in that bone, which is much fractured on both faces.

Private G. A. L., "I," 1st Pennsylvania Reserves, 23: Wilderness, 8th May; admitted hospital, Washington, 14th; died, 15th May, 1864.

Contributed by Acting Assistant Surgeon U. Sweet.

See class **XXVII.** B. B. d.

1246. A wet preparation of a portion of the right ilium, much shattered directly behind the acetabulum by a conoidal
b. 27. ball which entered the pelvis at the sacro-iliac symphysis.

Private S. W., "A," 23d New Jersey: Chancellorsville, 3d May; admitted hospital, Washington, 8th; died after secondary hæmorrhage, 24th May, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See class **XXVII.** B. B. d.

3212. The superior half of the left ilium. A conoidal ball from the front has struck the anterior superior spinous process
b. 28. and passed backward nearly three inches in the long diameter of the bone, breaking it up with much comminution. The fragments are irregularly attached by callus, but the track of the ball is carious. The inner face of the ilium shows slight osseous deposits beyond the line of fracture.

Private M. S., "H," 116th Pennsylvania, 30: Cold Harbor, 3d June; admitted hospital, Washington, 12th June; died from pyæmia, 8th September, 1864.

Contributed by Acting Assistant Surgeon E. Neal.

See class **XXVII.** B. B. d.

4130. The sacrum and left os innominatum. A fragment of shell nearly one and a half by two inches has perforated
b. 29. the ilium near its centre and caused a complete fracture through the bone from the level of the base of the sacrum.
Private J. L. E., "A," Cobb's Legion, Georgia, (Rebel,) 35: Sailor's Creek, Va., 6th April; died from hæmorrhage, Washington, 28th April, 1865.
Contributed by Surgeon J. C. McKee, U. S. Army.
See class **XXVII.** B. B. d.

1641. The left innominatum and longitudinal half of the sacrum. A conoidal ball, which is attached, much battered,
b. 30. perforated the dorsum near its centre and lodged in the sacrum within half a line of the spinal canal. The ala of the ilium, for a space of nearly three inches square, is missing; externally this orifice is fringed with foliaceous callus; internally and posteriorly a border nearly an inch wide is necrosed and nearly separated; inferiorly a longitudinal fissure extends parallel with the anterior wall of the ischiatic notch; and the sacrum near the iliac junction is carious and has lost much tissue by absorption.
Private A. W., "F," 27th Indiana, 21: Chancellorsville, 3d May; in the hands of the enemy eleven days; treated in a field hospital until admitted Washington, 14th June; died exhausted, 8th July, 1863.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.
See class **XXVII.** B. B. d.

3586. The upper two-thirds of the sacrum. An oblique fracture extends laterally across the third vertebra, below which
b. 31. the bone has not been preserved. The wound was inflicted by a conoidal ball.
Private B. R., "K," 37th Wisconsin: wounded, 30th July; admitted hospital, Washington, 3d August; died from pyæmia, 10th August, 1864.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.

2015. The greater portion of the right ilium. The bone is perforated near its crest, two inches posteriorly to the anterior
b. 32. superior spinous process, as if by a buckshot. The track of the ball is carious, but on the lower external surface is a large fringe of spongy callus. Surrounding the internal orifice is a small quantity of new bone. Just above the posterior superior spinous process is a contused wound, three-fourths by one and one-fourth inches, over which the outer surface is wanting and which retains a corresponding involucrum.
Received from Assistant Surgeon H. Allen, U. S. Army.

2557. A wet specimen of the left hip joint. The femur was partly fractured on the posterior surface below the trochanter
b. 33. minor, at which point several of the fragments were attached, and a loose fragment from which is mounted with the specimen. The ischium was perforated through the tuberosity on nearly the same plane as the obturator foramen.
Private J. W. S., "H," 155th Pennsylvania, 19: wounded, 6th February, 1865; died from exhaustion, Washington, 20th May, 1866.
Contributed by Brevet Major W. Thomson, Assistant Surgeon, U. S. Army.

2217. A wet preparation of a section of the superior portion of the left ilium, perforated below the crest, from within
b. 34. outward, by a conoidal ball which cut the descending colon and lodged subcutaneously at the base of the pelvis. An artificial anus occurred at the wound of entrance.
Private J. R. M., "E," 11th Mississippi (Rebel): Gettysburg, 2d July, 1863; died in Baltimore, 12th March, 1864.
Contributed by Surgeon T. H. Bache, U. S. Vols.
See 2214, **XI.** A. B. e. 3; 2216, **XX.** A. B. a. 15.

1716. A wet preparation of the anterior portion of the pelvic bones, the external organs of generation and the soft
b. 35. tissues of the perineum. A conoidal ball entered four inches below the anterior superior spinous process of the left ilium, passed inward and downward, traversing the perineum and fracturing the ischium of the opposite side. Many bony fragments may be detected in the wound of exit. From the right ischium a track, long and ragged, lined with a thick black slough, passed down the thigh. This was not detected in life. The ball was not found.
Private H. M., "B," 8th New York, 35: wounded early in September; admitted hospital, Washington, 12th; died from secondary hæmorrhage, 29th September, 1863.
Contributed by Surgeon Henry Bryant, U. S. Vols.

For other illustrations, see 3205, **XII.** A. B. b. 54; 3572, **XII.** A. B. c. 5; 1758, **XX.** A. B. a. 19; 4628, **XXVI.** A. 2, 65; 4629, **XXVI.** A. 3, 120.

c. Operated Upon.

1794. A conoidal ball, and thirteen fragments of dead bone removed from the left ilium near the sacro-vertebral junction.
c. 1. The ball was taken from the muscle of the right hip.
Private D., 62d New York: removed and contributed by Surgeon S. D. Freeman, U. S. Vols.
See class **XXVII.** B. B. d.

For other illustrations, see 4628, **XXVI.** A. 2, 93.

e. Sequestra.

432. Six small fragments of dead bone, from the ilium.
e. **1.** Private B. C., "I," 63d Pennsylvania, 18: shell wound crest of right ilium, White Oak Swamp, Va., 30th June; admitted hospital, Baltimore, 27th July; necrosed surface gouged and fragments escaped from time to time; wound entirely closed and discharged the service, 27th November, 1862. "There was some contraction of the muscles of the thigh, and the foot could not long be maintained on the ground without inconvenience."
Contributed by Surgeon Lavington Quick, U. S. Vols.

3619. A large number of small bony fragments, some of which are necrosed and some represent new deposits, removed
e. **2.** from the left ilium perforated by a conoidal ball.
Sergeant H. O., "M," 24th New York Cavalry, 23: Cold Harbor, 3d June; bullet removed over the trochanter major, 9th July; furloughed, 17th September, 1864.
Contributed by Surgeon Joseph Hopkinson, U. S. Vols.

2214. Eight necrosed and carious fragments of bone, representing nearly one square inch of the ilium, and two metallic
e. **3.** rings from a bullet. The battered bullet is mounted with the specimen. A conoidal ball entered the left iliac region, wounded the descending colon, perforated the ilium in its posterior quarter and lodged subcutaneously at the back of the pelvis, whence it was cut out. The intestine adhered to the muscular parietes of the pelvis and communicated with an abscess under the iliacus internus and psoas magnus, which communicated with both apertures and was probably caused, first by the ball and then by the burrowing of the pus. The cavity of the descending colon was very small; long fæces of small calibre were accustomed to pass out of the wound of entrance.
Private J. R. M., "E," 11th Mississippi (Rebel): probably Gettysburg, 3d July, 1863; died, Baltimore, 12th March, 1864.
Contributed by Surgeon Thos. H. Bache, U. S. Vols.
See 2217, **XI.** A. B. b. 34; 2216, **XX.** A. B. a. 15.
See class **XXVII.** B. B. d.

1795. A flattened bullet and twelve small pieces of necrosed bone, from the right ischium. The acetabulum was so
e. **4.** injured as to permit the head of the femur to slide up on the dorsum of the ilium. The man recovered with two inches shortening of the limb.
Private J. A. P., "B," 104th New York: Gettysburg, 1st July; specimen removed by Acting Assistant Surgeon G. W. Fay, Baltimore, 2d September, 1862. Recovered.
Contributed by the operator.
See classes **XII.** A. B. b.; **XXVII.** B. B. d.

B. Injuries not caused by Gunshot.

A. Primary Conditions. { a. Contusions and partial fractures. b. Complete fractures. c. Operated upon.

b. Complete Fractures.

2977. Both pubic bones, completely and irregularly fractured near the extremity of each ramus.
b. **1.** Corporal H. W., "H," 13th Connecticut, 42: during the delirium of typhoid fever leaped from a window, falling fifty feet, and fractured the pelvis, ribs, right femur, humerus, ulna and radius, and lacerated the liver and kidneys, New Orleans, 25th November, 1863.
Contributed by Assistant Surgeon P. S. Conner, U. S. Army.
See 2991, **XIII.** B. A. c. 2.
See classes **IV.** B. A. b.; **VI.** B. A. b.; **VIII.** B. A. b.; **XX.** B. A. a.

XII. INJURIES AND DISEASES OF THE HIP JOINT.

- **A.** Gunshot Injuries.
  - **A.** Primary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Excisions.
    - d. Amputations.
  - **B.** Secondary Conditions.
    - a. Contusions, partial fractures and dislocations.
    - b. Complete fractures.
    - c. Caries dependent upon injury to adjacent parts.
    - d. Excisions.
    - e. Amputations.
    - f. Other operations.
    - g. Sequestra and exfoliations.
- **B.** Injuries not caused by Gunshot.
  - **A.** Primary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Dislocations.
    - d. Excisions.
    - e. Amputations.
    - f. Other operations.
  - **B.** Secondary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Dislocations.
    - d. Excisions.
    - e. Amputations.
    - f. Other operations.
    - g. Sequestra and exfoliations.
- **C.** Diseases.

XII. HIP JOINT.

A. Gunshot Injuries.

A. Primary Conditions.

- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Excisions.
- d. Amputations.

c. Excisions.

71. c. 1. The upper portion of the left femur, sawn two inches below the smaller trochanter, excised for fracture of the neck at the base of the greater trochanter by a musket ball which obliquely split the shaft. *See figure* 62.

Private, unknown: wounded, Gainesville, Va., 28th August, 1862; excised the same day by Surgeon Peter Pineo, U. S. Vols. The patient fell into the hands of the enemy and probably died.

Contributed by the operator.

See 4627, **XXVI.** A. 1, 13.

FIG. 62. Upper portion left femur primarily excised. *Spec.* 71.

d. Amputations.

1148. d. 1. The left femur, obliquely fractured in the upper third, with a minute fissure extending to the lesser trochanter and a small triangular portion chipped from the anterior surface at the point of impact. *See figure* 63.

Private J. E. K., "B," 56th Pennsylvania, 28: near Fredericksburg, 29th April; disarticulated seven hours after injury by Surgeon Edward Shippen, U. S. Vols.; captured and transferred to Libby Prison, Richmond, 15th June; exchanged, 14th July; discharged the service, healed, 23d December, 1863.

Kelly was heard from as in good health, near Black Lick P. O., Indiana county, Pennsylvania, 26th January, 1867.

Contributed by the operator.

See 4627, **XXVI.** A. 1, 3.

2273. d. 2. The upper half of the left femur, comminuted in the highest third by a rifle ball which grazed the right thigh, passed through both testicles and perforated the left thigh. The fracture extends over four inches of the shaft.

G. C., Seaman, U. S. Ship "Minnesota," 21: Smithfield, Va., 1st February; admitted Naval Hospital, Norfolk, 2d February, 1864; amputated at the hip joint by Surgeon Albert C. Gorgas, U. S. Navy, the day of admission, and died without reacting.

Contributed by the operator.

1379. d. 3. The upper extremity of the left femur, comminuted through the smaller trochanter by a conoidal ball.

Private J. M., "I," 146th New York, 20: near Williamsport, Md., 13th July, 1863; amputated in the field by Assistant Surgeon B. Howard, U. S. Army; died while being moved to Sharpsburg, forty-eight hours afterward.

Contributed by the operator.

FIG. 63. Left femur successfully disarticulated. *Spec.* 1148.

3080. The upper two-thirds of the right femur. The shaft for a long distance from the trochanters is completely com-
d. 4. minuted, the extreme length of the fracture being eight and a half inches and one-half of the fragments being missing. The injury was by shell, which produced great laceration of the soft parts. The operation was performed two hours after injury, when the subject seemed in the most favorable condition.

Private J. B., "B," 26th Pennsylvania, 22: Spottsylvania, 18th May, 1864; disarticulated by Surgeon C. C. Jewett, 16th Massachusetts Died two hours afterward.

Contributed by the operator.

B. Secondary Conditions.

a. Contusions, partial fractures and dislocations.
b. Complete fractures.
c Caries dependent upon injury to adjacent parts.
d. Excisions
e. Amputations.
f. Other operations.
g. Sequestra and exfoliations.

a. Contusions, Partial Fractures and Dislocations.

1285. The bones of the left hip joint, with a conoidal ball. The missile appears to have contused the inferior border
a. 1. of the head of the femur, although the history claims the superior margin of the acetabulum was chipped. The bony injury was very trivial and no serious consequences ensued until after imprudent exertion. In the specimen the entire articular surfaces are eroded.

Private J. D., "E," 129th Pennsylvania, 20: Chancellorsville, 3d May; died from pyæmia, Fifth Corps Hospital, 3d June, 1863.

Contributed by Assistant Surgeon Philip Adolphus, U. S. Army.

See class **XXVII.** B. b. d.

1461. The upper fourth of the right femur. A bullet at low velocity has impinged against the neck on the anterior
a. 2. surface, crushing in the compact substance and causing a slight fissure down the shaft, and another, almost imperceptible, on the posterior surface of the neck. The capsule was probably opened, and some periosteal inflammation has occurred.

Contributor and history unknown.

465. The upper extremity of the right femur, contused on the under surface of the neck at its junction with the head.
a. 3. No pathological change appears beyond moderate local necrosis. A spherical leaden ball is mounted with the specimen.

Private J. S., "B," 43d Ohio: Corinth, Miss., 3d October; admitted hospital, St. Louis, 15th; died, 24th October, 1862

Contributed by Surgeon J. T. Hodgen, U. S. Vols.

See class **XXVII.** B. b. d.

3951. The upper fourth of the left femur, with a fragment of a round ball embedded in the neck within the capsule.
a. 4. The specimen is a very fair illustration of injury to bone by such missiles at low velocities. There is no evidence of chronic articular disease.

Contributor and history unknown.

See classes **XIII.** A. b. a.; **XXVII.** B b. d.

545. The upper portion of the left femur, with the great trochanter fractured and a portion of a round ball embedded in
a. 5. the neck. The missile passed behind the neck of the femur to the body of the pubes, and was discovered in the scrotum, near the spermatic cord, about an inch and a half below the external ring.

Lieutenant A. G. R., Adjutant, 134th Pennsylvania, 24: Fredericksburg, 13th December; admitted hospital, Washington, 20th; died of tetanus, 28th December, 1862.

Contributed by Surgeon Charles L. Allen, U. S. Vols.

See classes **XX.** A. b. a.; **XXVII.** B. b. d.

2374. A portion of the left ischium and the upper extremity of the femur. There is a partial fracture of the head of the
a. 6. femur at its articular border and of the ischium by a battered round ball, which is attached.

Private S. I., "C," 10th Massachusetts, 25: The Po, Va., 12th May; admitted hospital, Alexandria, 24th; died exhausted, 28th May, 1864.

Contributed by Acting Assistant Surgeon Jona. Cass.

See class **XXVII.** B. b. d.

758. The right os innominatum and head of the femur. The joint was opened and the ischium at the lower border of
a. 7. the acetabulum contused by a musket ball which escaped through the glutæus maximus. The articular surfaces are eroded, but the implication of the joint was not suspected during life. The external iliac was tied for secondary hæmorrhage occurring in the track of the wound.

Private —— G., 5th Ohio: Antietam, 17th September; died from exhaustion and hæmorrhage, Frederick, 28th October, 1862.

Contributed by Assistant Surgeon J. H. Bill, U. S. Army.

See class **XVIII. II.** A. B. b.

211. The upper fourth of the right femur. A bullet, striking the anterior aspect of the neck at its base, has slightly
a. 8. contused the bone and grooved out its own path, which involves the capsule. There is very little change of the bone, and death probably resulted from some coincident.

Contributor and history unknown.

1659. The bones of the left hip joint. A conoidal ball from the left contused the neck of the femur within the capsule,
a. 9. chipped the lower border of the acetabulum and the ischium, passed though the obturator foramen and between the rectum and urethra, without injuring either, and escaped behind the ramus of the right ischium. The articular surfaces are entirely eroded.

Private M. P., "K," 6th Maine: Second Fredericksburg, 3d May; admitted hospital, New York Harbor, 9th June; died, 11th June, 1863.

Contributed by Assistant Surgeon Roberts Bartholow, U. S. Army.

1661. The upper third of the right femur, with a round ball, entering from behind, impacted in the trochanter major,
a. 10. partially fracturing the neck within the capsule.

Private L. R., "F," 48th New York, 18: Fort Wagner, S. C., 18th July; died, New York Harbor, 3d August, 1863.

Contributed by Assistant Surgeon Roberts Bartholow, U. S. Army.

See classes **XIII.** A. B. a.; **XXVII.** B. B. d.

3931. The upper portion of the right femur, with a conoidal ball, which has longitudinally fissured the shaft, lodged in
a. 11. the neck from above.

Sergeant D. Y., "H," 106th New York: Monocacy Junction, Md., 9th July; died of pyæmia, Frederick, 20th July, 1864.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

See class **XXVII.** B. B. d.

565. The upper portion of the left femur, grooved between the trochanters on the
a. 12. posterior surface by the passage of a conoidal ball from below upward and inward. The track of the ball is carious, and the space between the trochanters is bridged over by a displaced fragment of bone attached in its new position by slight osseous deposits. The great trochanter has been split off and fissured, and is reattached by the process of nature. The articular surface is slightly eroded, but it is difficult to decide whether that condition occurred during life. The missile, which is mounted, was found resting against the capsular ligament. *See figure* 64.

Captain J. M. L., "I," 20th Indiana: wounded through the left lumbar muscles, and while lying on the field received the wound seen in the specimen, before Richmond, 27th June; admitted hospital, Washington, 29th June; there was no interference with the joint motion, and the missile could not be detected; died from exhaustion, 29th August, 1862.

Contributed by Assistant Surgeon W. M. Notson, U. S. Army.

See 4628, **XXVI.** A. 2, 57.

See class **XXVII.** B. B. d.

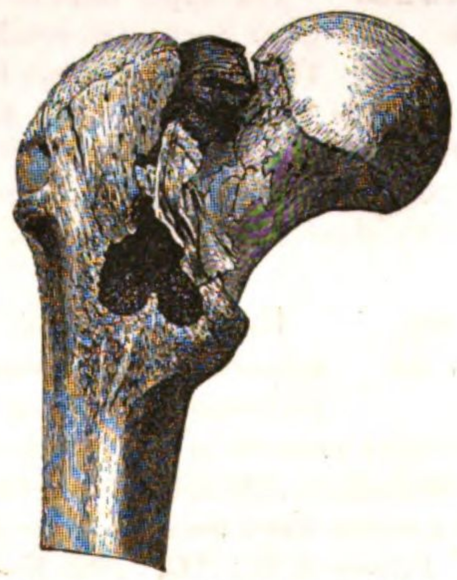

FIG. 64. Partial fracture neck of left femur, with ball lodged within the capsule. *Spec.* 565.

3520. The upper fifth of the right femur, sawn in two longitudinally, showing a penetrating fracture of the neck by a
a. 13. Colt's pistol ball, which has lodged, exposing its surface just within the capsule. The fracture was not detected until too late for interference. The joint was destroyed by suppuration, and the head partly absorbed.

Sergeant E. S., "A," 1st New Jersey Cavalry, 26: near Warrenton, Va., 15th January; admitted hospital, Washington, 1st February; died from exhaustion, 18th March, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See class **XXVII.** B. B. d.

3806. The upper third of the right femur, fractured in the anterior surface of the great trochanter, with intracapsular
a. 14. involvement. At the time of death the periosteum was dissected off the femur to its middle third, and the head was eroded and spongy.

Private J. C., "I," 10th New Jersey, 19: Charlestown, Va., 20th August; admitted hospital, Frederick, 14th September, 1864; died from exhaustion, 12th January, 1865.

Contributed by Acting Assistant Surgeon F. A. Gove.

2178. The upper half of the right femur. A partial fracture of the great trochanter, opening the capsular ligament,
a. 15. had induced inflammation and osseous anchylosis of the head with the acetabulum. The anterior third of the trochanter has disappeared through the fracture and caries.

Musician J. B. H., "A," 41st Ohio: Chickamauga, 20th September, 1863; admitted hospital, Nashville, 27th January; died from general erysipelatous inflammation, 13th February, 1864.

Contributed by Surgeon John W. Foye, U. S. Vols.

See class **XXIII.** A. a.

2488. A portion of the right innominatum. A conoidal ball appears to have struck the ilium just above the great
a. 16. ischiatic notch, and to have perforated the bone, partially fracturing the base of the acetabulum, which, in the specimen, is carious, escaping near Poupart's ligament. The records represent the course of the ball to have been directly the reverse, and the case that of—

Corporal G. W. S., "C," 20th North Carolina Rifles, (Rebel,) 20: Spottsylvania, 12th May; admitted hospital, Washington, 22d May; died, 9th June, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

See class **XXVII.** B. b. d.

3143. The upper third of the left femur. The great trochanter has been carried away by a conoidal ball, the fracture
a. 17. entering the capsule. There is some erosion of the inferior portion of the head as it joins the neck. Necrosis of the shaft borders the fracture.

Private P. W., "I," 185th New York, 19: Petersburg, 29th March; admitted hospital, Washington, 2d April; fragments removed, 9th; died from pyæmia, 20th April, 1865.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

See class **XIII.** A. b. a.

169. The left os innominatum. The ilium is contused by a missile that has grazed the upper and outer margin of
a. 18. the acetabulum, the adjacent surface of which is carious. A fringe of callus marks the superior border of the injury to the ilium.

Contributed by Surgeon O. A. Judson, U. S. Vols.

2528. The upper third of the left femur, partially fractured by a conoidal ball which impinged below the base of the
a. 19. great trochanter, crushing the laminated structure and producing a longitudinal fracture that has entered the capsule. The articular surface has not suffered from the original injury, nor from subsequent disease.

Private W. O., "K," 2d U. S. Cavalry, 37: wounded, 1st June; admitted hospital, Washington, 4th: died exhausted, 11th June, 1864.

Contributed by Surgeon John A. Lidell, U. S. Vols.

See class **XXVII.** B. b. d.

86. The upper third of the right femur. A
a. 20. conoidal ball has entered from the front and perforated the bone at the base of the neck, lodging, exposed, in the great trochanter. A longitudinal fracture, which extends to the articulation, reaches six inches down the shaft. *See figures* 65 *and* 66.

Private J. R., "C," 69th New York, 29: admitted hospital, Washington, 30th March; died, 6th April, 1865.

Contributed by Acting Assistant Surgeon T. P. Arthur.

See classes **XIII.** A. b. a.; **XXVII.** B. b. d.

3525. The left os innominatum and the upper
a. 21. extremity of the femur. The ilium is deeply grooved at the upper and posterior margin of the acetabulum, which is chipped, by the passage of a conoidal ball.

Private W. P. T., "D," 121st New York, 21: Wilderness, 5th May; admitted hospital, Washington, 14th; died from pyæmia, 21st May, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

FIG. 65. Front view of right femur perforated by a conoidal ball between the trochanters. *Spec.* 86.

FIG. 66. Rear view of right femur, showing a conoidal ball lodged between the trochanters. *Spec.* 86.

1747. The upper fourth of the left femur, perforated through the neck by a conoidal ball which entered anteriorly near
a. 22. the base of the great trochanter and escaped in the cleft of the nates A complete oblique fracture between the tuberosities, with intracapsular fissures, is shown The articular surface is uninjured.

Captain M., 79th Illinois: Chickamauga, Ga., 19th September; admitted hospital, Murfreesboro', 22d; died, 29th September, 1863.

Contributed by Surgeon I. Moses, U. S. Vols.

See class **XIII.** A. B. b.

466. The upper fourth of the left femur, perforated by a round ball directly through the neck and great trochanter, with
a. 23. loss of substance but with little splintering. The fracture extends within the capsule, and the head of the bone is eroded by ulceration.

Private A. B., "C," 12th Illinois, 23: Corinth, Miss., 3d October; died in St Louis, 23d October, 1862.

Contributed by Surgeon John T. Hodgen, U. S. Vols.

See class **XXVII.** B. B. d.

4168. The upper fourth of the left femur, fractured through the trochanters, opening the capsule. The trochanters at
a. 24. the place of fracture are carious, and the joint was secondarily involved.

Private T. R., 210th Pennsylvania, 25: probably Petersburg, 25th March; admitted hospital, Washington, 6th April; died exhausted, 18th April, 1865.

Contributed by Brevet Captain W. F. Norris, Assistant Surgeon, U. S. Army.

3232. The sacrum, right os innominatum and upper portion of the femur. The ilium is perforated near the sacro-iliac
a. 25. symphysis by a conoidal ball, the opening being one and a half inches in diameter. Fragments of the inner table were driven in and are feebly attached by new bone; the track of the ball is carious and the edges of the orifice have received new bony deposits. The femur is partially dislocated upward and backward, and is anchylosed against the iliac margin of the acetabulum. The entire articular surfaces were softened and partly absorbed, and the inner surface of the femur is eroded

Private J. S., "C," 1st Illinois Cavalry, 29: Dandridge, 17th January, 1864; died, Madison, Wis., 13th August, 1865.

Contributed by Surgeon H. Culbertson, U. S Vols.

For other illustrations, see 1212, **XI.** A. B. a. 8; 4719, **XXVI.** A. 4, 156.

b. Complete Fractures.

1247. The upper portion of the left femur, with the head slightly chipped by a rifle ball and much eroded The edge
b. 1. of the acetabulum was a little roughened. The bullet entered outside the anterior superior spinous process of the ilium and emerged through the buttock one inch outside the spine of the ischium. Could a correct diagnosis have been made, this would have been a typical case for excision.

Private C. R., 49th New York: Second Fredericksburg, 3d May; admitted hospital, Washington, 8th; died exhausted, 31st May, 1863

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

3021. The left os innominatum and part of the femur. The ilium is grooved immediately at the upper margin of the
b. 2. acetabulum, into which a fissure extends. The cartilage was eroded and partially absorbed.

Private W. B., "B," 5th New York, 19: South Side R. R., 1st April; admitted hospital, Washington, 6th; died of pyæmia, 14th April, 1865.

Contributed by Brevet Captain W. F. Norris, Assistant Surgeon, U. S. Army.

1183. The lower portion of the right innominatum. The thyroid portion of the acetabulum is fractured by a round ball
b. 3. which entered above the left tuber ischii, perforated the rectum, inflicted the injury seen in the specimen and lodged in the external muscles of the thigh.

First Sergeant T. A., "C," 119th New York, 26: Second Fredericksburg, 2d May; admitted hospital, Alexandria, 25th; died, 30th May, 1863.

Contributed by Surgeon Edwin Bentley, U. S. Vols.

See classes **XX.** A. B. a; **XXVII.** B. B. d.

1616. The upper extremity of the left femur, with a conoidal ball lodged against the upper and external portion of the
b. 4. head, which is deeply fissured and irregularly eroded.

Private D. F, "G," 111th New York: Gettysburg, 3d July; admitted hospital, Baltimore, 16th; died, 26th July, 1863.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

See class **XXVII.** B. B. d.

4267. The upper portion of the left femur. A musket ball entered the anterior surface and became impacted in the base
b. 5. of the neck, causing a longitudinal fracture through the great trochanter that involved the head and several inches of the shaft. The bullet has been removed, leaving a conical cavity of the depth of two inches.

Private B. H., "C," 9th West Virginia, 19: Winchester, 20th July; admitted hospital, Cumberland, 23d; bullet extracted, 26th July; died, 3d August, 1864.

Contributed by Surgeon J. B. Lewis, U. S. Vols.

3726. The upper extremity of the left femur and the greater portion of the acetabulum. The summit of the head of the
b. 6. femur has been grooved and the superior margin of the acetabulum broken by a bullet which entered close to Poupart's ligament. The joint became disorganized, the limb gangrenous and the sigmoid flexure of the colon ulcerated, from which death followed.

Private R. S N., "A," 26th Massachusetts, 34: Winchester, 19th September; admitted hospital, Baltimore, 1st November; died, 20th November, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

548. The upper third of the right femur. A bullet has struck the base of the great trochanter and, passing upward,
b. 7. grooved in the bone its own calibre, splitting it in three large fragments, the line of fracture entering the capsule. There has been no attempt at repair, but the inferior portion of the shaft is much roughened and superficially necrosed by dissecting sinuses.

Contributor and history unknown.

1300. The upper third of the left femur. A conoidal ball flattened itself against the anterior surface at the base of the
b. 8. great trochanter, obliquely fracturing the shaft and lower part of the neck nearly to the head.

Private F. G., "A," 1st Louisiana, 42: before Port Hudson, La., 27th May; admitted hospital, New Orleans, 29th May; died, 4th June, 1864.

Contributed by Assistant Surgeon P. S. Conner, U. S. Army.

See class **XXVII.** B. B. d.

598. The upper third of the left femur, with a conoidal ball firmly embedded on the anterior face at the junction of the
b. 9. head and neck. Several fissures extend into the head and back upon the great trochanter.

Private C. C. B., "E," 16th Maine, 26: Fredericksburg, 13th December; admitted hospital, Alexandria, 19th; died from pyæmia, 25th December, 1862.

Contributed by Surgeon E. Bentley, U. S. Vols.

See class **XXVII.** B. B. d.

1291. The upper extremity of the left femur, showing a complete fracture through the neck without comminution, except
b. 10. to a small extent at the point of impingement on the superior margin. The missile, which passed through the obturator foramen and lodged in the middle line of the perineum, is attached.

Private W. C., "C," 159th New York, 37: Irish Bend, La., 14th April; admitted hospital, New Orleans, 17th; died, 21st April, 1863.

Contributed by Assistant Surgeon P. S. Conner, U. S. Army.

See class **XXVII.** B. B. d.

3904. The bones of the left hip joint. A conoidal ball from the front has fractured the horizontal ramus of the pubes,
b. 11. the pubic portion of the acetabulum, and has chipped off a fragment from the inferior segment of the head of the femur. The articular surfaces are somewhat eroded.

Private Z. S., "K," 2d Ohio Cavalry, 25: Richmond, (Valley,) Va., 22d August; admitted hospital, Frederick, 29th August; died, 7th September, 1864.

Contributed by Acting Assistant Surgeon J. H. Coover.

3789. The upper extremity of the left femur. The head is completely fractured from the neck by a conoidal ball which
b. 12. gouged out its own course on the superior border. A complete fracture through the depression for the ligamentum teres separates the posterior third of the head.

Captain J. F. G., "G," 47th Pennsylvania: Cedar Creek, 19th October; died exhausted, Winchester, 5th November, 1864.

Contributed by Surgeon L. P. Wagner, 114th New York.

1908. The bones of the right hip joint, with a conoidal ball, which entered from the rear one inch above the greater
b. 13. ischiatic notch and chipped the lower margin of the acetabulum, lodged in the summit of the head of the femur, which is perpendicularly fractured in that line.

Private J. W., "K," 6th Maryland, 45: accidentally wounded, 30th November; admitted hospital, Alexandria, 4th December; died, 13th December, 1863.

Contributed by Acting Assistant Surgeon Jona. Cass.

See class **XXVII.** B. B. d.

3390. The upper extremity of the left femur. A rifle ball has passed through the head in the long diameter of the neck,
b. 14. which it obliquely fractured.

Private S. N. E., "D," 40th Indiana, 22: Marietta, Ga., June; admitted hospital, Chattanooga, 25th; died, 28th June, 1864.

Contributed by Assistant Surgeon C. C. Byrne, U. S. Army.

125. The upper extremity of the right femur with a conoidal ball, which appears to
b. 15. have entered over the greater trochanter, lodged in the head. The acetabulum could not have been directly injured, although the anterior portion of the head shows erosion of the articular surface due to ulceration. The case appears to have been a fair one for excision of the head of the femur. *See figure* 67.

Contributed by Surgeon R. H. Alexander, U. S. Army.

See class **XXVII.** B. B. d.

FIG. 67. Conoidal ball lodged in the head of right femur. *Spec.* 125.

3582. The upper extremity of the left femur. About one-fifth of the head, at its junc-
b. 16. tion with the superior border of the neck, has been carried away by a conoidal ball which also fractured the acetabulum.

Private G. W. C., "F," 59th Massachusetts: Petersburg, 30th July; admitted hospital, Washington, 3d August; died, 5th August, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

3923. The upper third of the left femur with a conoidal ball, which entered two inches below the groin and one inch
b. 17. posteriorly to the femoral artery, lodged in the head. The head was badly shattered by the ball and is much absorbed, leaving, however, the shell of the articular surface nearly intact. The lesser trochanter is missing, as though lost by separation at the epiphyseal line. The acetabulum, which was not preserved, is said to have been greatly necrosed.

Private C. H. M., "G," 3d Maryland: admitted hospital, Frederick, Md., 7th July; died exhausted, 26th October, 1864.

Contributed by Assistant Surgeon R. F. Weir, U. S Army.

See class **XXVII.** B. B. d.

1462. The upper extremity of the right femur, with the head of the bone completely disorganized by pyæmic inflammation
b. 18. following the lodgement of a conoidal ball in the neck, undiscovered during life The missile is attached.

Private S. F., "E," 111th New York: Gettysburg, 3d July; admitted hospital, Baltimore, 15th; died from pyæmia, 18th July, 1863.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

See class **XXVII.** B. B. d.

3488. The head of the left femur and a large longitudinal fragment of the neck, including the trochanter minor, split off
b. 19. by a conoidal ball The fracture extends completely through the neck at its upper extremity.

Sergeant W. D. H., "A," 6th Iowa: Kenesaw Mountain, Ga., 27th June; admitted Fifteenth Corps Field Hospital, Boston Iron Works, Ga., 1st July; died, 3d July, 1864.

Contributed by Surgeon A. Goslin, 48th Illinois.

3797. The upper third of the left femur obliquely fractured, with comminution at the neck, by a conoidal ball which is
b. 20. embedded in the anterior aspect. The bone adjacent to the fracture is necrosed, and periosteal disturbance has involved the upper portion of shaft. The joint ligament sloughed.

Private A. D., 43d New York: Cedar Creek, 19th October; died from exhaustion, Winchester, 8th November, 1864.

Contributed by Assistant Surgeon J. G. Thompson, 77th New York.

See class **XXVII.** B. B. d.

1603. The inferior portion of the left os innominatum and head of the femur. A conoidal carbine ball is embedded in
b. 21. the horizontal ramus of the pubes at its junction with the ilium, penetrating the acetabulum.

Corporal J. F., "D," 2d New York Cavalry: Aldie, Va., 17th June; admitted hospital, Alexandria, 18th; died from strangulation of jejunum in Hasselbach's triangle, 25th June, 1863.

Contributed by Acting Assistant Surgeon W. Leon Hammond.

See 1604, **XX.** A. B. a. 11.

See class **XXVII.** B. B. d.

2309. The upper fourth of the left femur. A conoidal ball struck the neck at its base, splitting off the great trochanter
b. 22. and completely fracturing the neck. The injury was partly intracapsular, but did not include the head.

Private H. J., "F," 14th New York, 26: Spottsylvania, 10th May; admitted hospital, Washington, 13th; died from peritonitis, 21st May, 1864.

Contributed by Acting Assistant Surgeon T. Walsh.

592. The upper half of the right femur, shattered at the trochanters, with a complete fracture through the neck and an
b. 23. oblique one down the shaft. The specimen shows an incomplete resection.

Private T. H., "F," 5th Pennsylvania Reserves, 23: Fredericksburg, 13th December, 1862; excision was attempted, but relinquished from the severity of the injury; died, Washington, 2d January, 1863.

Contributed by Surgeon H. Bryant, U. S. Vols.

See class **XII.** A. B. d.

3946. The bones of the left hip joint. A conoidal ball entered above the trochanter major, completely fractured the
b. 24. neck and chipped the posterior portion of the head of the femur, fractured the lower portion of the acetabulum and, as it is said, lodged above the iliac border. The articular surface of the acetabulum is much disorganized. The fracture, which is entirely intracapsular, was not diagnosed until a few days before death.

Private G. L., "D," 5th Louisiana, (Rebel,) 21: Monocacy, 9th July; admitted hospital, Frederick, the same day; died, 3d September, 1864.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

694. The bones of the left hip joint, thoroughly carious and in a great measure absorbed on the articular surfaces.
b. 25. On the body of the ischium, bordering the acetabulum, a deposit of callus has occurred. The point of impingement appears to have been the ischium at the lowest margin of the acetabulum, where a square inch of the bone is necrosed and nearly separated. The ball entered the left hip, behind the femur, and emerged at the root of the penis. While supporting his head on both hands, another bullet wounded the thumb and forefinger of the left hand and the lower ends of the metacarpals of the right hand, passed through the right ear and upward under the scalp for three inches and then escaped.

Corporal C. H. R., 'C," 1st New Jersey, 19: Gaines' Mill, 27th June; died, Philadelphia, 20th September, 1862.

Contributed by Surgeon P. B. Goddard, U. S. Vols.

3792. The bones of the right hip joint, with the neck of the femur broken off close to its trochanteric extremity. The
b. 26. fracture extends to and involves the head, a portion of which is absorbed and the whole of whose surface is carious from the succeeding disease. For several weeks it was supposed the margin of the acetabulum had been fractured, producing luxation.

Private W. A. M., "C," 24th Iowa, 21: Winchester, 17th September, 1864; died exhausted, 13th February, 1865.

Contributed by Surgeon L. P. Wagner, 114th New York.

4213. The upper extremity of the right femur. The neck has been perforated and shattered by a conoidal ball which
b. 27. entered from behind and lodged near the trochanter minor, opening the joint, which is eroded and to a degree carious.

Captain E. F. S., "K," 1st New York Cavalry, 23: Sailor's Run, Va., 6th April; admitted hospital, Washington, 7th May; died of pyæmia, 2d June, 1865.

Contributed by Acting Assistant Surgeon G. K. Smith.

2106. The bones of the right hip joint. A conoidal ball entered just above Poupart's ligament, ranged downward and
b. 28. backward through the posterior portion of the acetabulum, grazing the head of the femur and lodging above the tuber ischii. Much of the head of the femur is eroded, but on the anterior aspect a small circular portion of sound bone remains, surrounded by diseased tissue. That portion of the acetabulum directly fractured is necrosed, and the greater part of the remainder is carious.

Private W. H., "C," 22d Indiana: Mission Ridge, 25th November, 1863; died, 10th January, 1864.

Contributed by Acting Assistant Surgeon Stubbs.

See class **XXVII.** B. B. d.

1391. A part of the right os innominatum, with the ischiatic portion of the acetabulum chipped by a bullet which
b. 29. wounded the penis and scrotum.

Private J. B. F., "D," 42d Virginia, (Rebel,) 25: probably Southside R. R., 1st April; admitted hospital, Washington, 6th; died from pyæmia, 21st April, 1865.

Contributed by Assistant Surgeon W. F. Norris, U. S. Army.

See class **XX.** A. B. a.

3419. The upper fourth of the left femur, shattered through the neck, with loss of substance in the upper portion. The
b. 30. bullet entered from the front. The same case contributed an ununited fracture of the forearm.

Private M. K., "D," 65th New York, 36: admitted hospital, Baltimore, 24th October; died, 1st November, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

See 3420, **VIII.** A. B. b. 8.

33. The upper extremity of the left femur, with the neck shattered at its junction with the head. The greater portion
b. 31. of the head is intact. The extremity of the neck is necrosed. A conoidal ball entered below Poupart's ligament, externally to the femoral vessels, and escaped directly opposite through the buttock.

Private P. M., "B," 1st Virginia Rifles, (Rebel,) 28: Williamsburg, 5th May; died exhausted, Washington, 26th May, 1862.

Contributed by Assistant Surgeon J. S. Billings, U. S. Army.

4227. The bones of the right hip joint, with the head of the femur, shattered by a conoidal ball which entered over the
b. 32. pubes and is embedded in the neck. There was no shortening of the limb and no important vessels had been wounded. There was a slight fracture of the pubic border of the acetabulum, and the specimen shows that some inflammatory action has occurred in the region.

Private P. M., "A," 28th Massachusetts: Petersburg, 25th March; admitted hospital, Washington, 28th March; died from exhaustion, 12th June, 1865.

Contributed by Acting Assistant Surgeon H. Richings.

See class **XXVII.** B. B. d.

1253. The upper portion of the right femur, shattered by a conoidal ball at the junction of the head and neck. Numerous
b. 33. spiculæ of bone were driven into the muscular tissue.

Sergeant S. W. N., "E," 15th New Jersey, 22: Second Fredericksburg, 3d May; admitted hospital, Washington, 8th; died exhausted, 20th May, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

908. The upper third of the left femur. The greater portion of the neck has been carried away and only the superior
b. 34. third of the head remains. Attempted separation of necrosed bone and traces of callus show a prolonged struggle for life, notwithstanding the severity of the injury.

Contributor and history unknown.

3632. The bones of the left hip joint, fractured by a conoidal ball which shattered the neck at the great trochanter,
b. 35. slightly broke the margin of the acetabulum and glanced up and lodged in the pelvis A portion of the head is absorbed, and a slight deposit of new bone exists on the shaft. The surface of the acetabulum is eroded. The gravity of the injury was not appreciated during life.

Sergeant C. G. P., "G," 13th Pennsylvania Cavalry, 34: near Malvern Hill, Va., 16th August; admitted hospital, Philadelphia, 20th August; died from pyæmia, 9th October, 1864.

Contributed by Surgeon I. I. Hayes, U. S. Vols.

782. The upper two-thirds of the left femur, showing a complete fracture of the neck, with little comminution. The
b. 36. ball, which was never discovered, appears to have impinged against the head on its under surface at its junction with the neck. The shaft bordering the fracture is superficially necrosed. The character of the injury was not recognized until the day before death.

Private T. M., "F," 63d New York, 19: Antietam, 17th September; admitted hospital, Frederick, 27th September; died from exhaustion, 5th November, 1862.

Contributed by Acting Assistant Surgeon Alfred North.

1967. The upper third of the right femur. The neck was completely comminuted, the fracture extending into the head,
b. 37. which is generally eroded. Fragments, partly necrosed, are attached to the shaft near the tuberosities by slight osseous new formations.

G. K. S.: Gettysburg.

Contributor and history unknown.

2398. The bones of the left hip joint. A conoidal ball entered on a line with the coccyx, two inches above the anus,
b. 38. notched the ischium to its own diameter at the base of the thyroid foramen, shattered the neck of the femur and escaped over the great trochanter. Excepting a slight fissure on its articular surface, the head of the femur is uninjured.

Private W. J. L., "I," 57th Pennsylvania, 22: Wilderness, 5th May; admitted hospital, Washington, 28th; died exhausted, 30th May, 1864.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

3636. The bones of the left hip joint. A conoidal ball entered over the great trochanter. The head of the femur was
b. 39. somewhat chipped, and in the specimen the ball is mounted thereon as though the place of lodgement (which is not clear from the history). Much of the head of the femur is absorbed. The acetabulum is carious, and on the pelvic surface ulceration is perceptible, as though local disease had occurred from the force of the contusion.

Private R. M. H., "D," 1st New Jersey Cavalry: Spottsylvania, 12th May; died exhausted, Philadelphia, 21st June, 1864.

Contributed by Acting Assistant Surgeon George Kerr.

See class **XXVII.** B. B. d.

1602. The upper third of the left femur, with the head completely shattered (by a round ball which lodged) and partially
b. 40. absorbed. A very trivial deposit of new bone occurs on the neck. The articular tissues were gangrenous at death. Would have been a fair case for primary excision could the diagnosis have been made.

Private J. M., "I," 61st New York: Chancellorsville, 3d May; admitted hospital, Washington, 8th May; died exhausted, 3d August, 1863.

Contributed by Assistant Surgeon C. A. McCall, U. S. Army.

116. The lower portion of the left os innominatum. The thyroid border of the acetabulum is broken in by a bullet
b. 41. which entered behind the right greater trochanter, perforated the rectum and impinged against the left ischium, as seen in the specimen. The bone, where struck, is necrosed, and the articular surface is much eroded.

Private L. M. B., "I," 1st Massachusetts: Second Bull Run, 30th August; admitted hospital, Georgetown, 6th September; died, 1st October, 1862.

Contributor unknown.

3793. The bones of the right hip joint, with the head of the femur shattered and split off from the neck by a conoidal
b. 42. ball which has lodged against the border of the acetabulum. There has been some ulceration of the bottom of the cotyloid cavity.

Corporal W. F., "C," 24th Iowa, 25: Cedar Creek, 19th October; died from pyæmia, Winchester, 3d November, 1864.

Contributed by Surgeon L. P. Wagner, 114th New York.

See class **XXVII.** B. B. d.

1248. The upper portion of the left femur. A bullet, which perforated the acetabulum and lodged in the pelvis, has
b. 43. shattered the head of the femur. Erysipelatous inflammation and extensive abscesses followed, but there was no trace of pyæmia.

Corporal G. G., "D," 13th Massachusetts, 21: Chancellorsville, 4th May; admitted hospital, Washington, 7th; died exhausted, 16th May, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See class **XXIII.** A. A.

1843. The upper portion of the right femur, with the head shot away by a bullet passing through the acetabulum into
b. 44. the pelvic cavity. Of the neck that remained much has been absorbed, and the extremity is carious. There is a formation of new bone between the trochanters.

Contributed by Acting Assistant Surgeon T. Hunt Stillwell.

2174. The bones of the left hip joint. A conoidal ball from the front shattered the head at its junction with the neck,
b. 45. notched the ischium just below the acetabulum and lodged in the pelvis without injury to the viscera. The borders of the bony wound are necrosed.

Private R. S., "K," 13th Illinois: Ringgold, Ga.; admitted hospital, Nashville, 15th December; died exhausted, 21st December, 1863.

Contributed by Surgeon John W. Foye, U. S. Vols.

2493. The left os innominatum and upper extremity of the femur. A conoidal ball entered above the lesser ischiatic
b. 46. notch, fractured the iliac portion of the acetabulum and the head of the femur and, rebounding, was caught by a hook-like process in a mesenteric pouch.

Private W. B., 19th New York Battery, 24: Spottsylvania, 12th May; admitted hospital, Washington, 24th May; died, 9th June, 1864.

Contributed by Assistant Surgeon J. C. McKee, U. S. Army.

533. The bones of the right hip joint. A bullet has struck the outer aspect of the great trochanter, passed through
b. 47. the neck nearly in the axis of its long diameter, carried off the inner fourth of the head of the femur, destroyed the third of the acetabulum next the thyroid foramen and, having been slightly deflected, fractured the pubes near the symphysis. The acetabulum is eroded, but the articular surface of the femur, where not fractured, is not roughened. A slight longitudinal fissure exists below the great trochanter.

Contributor and history unknown.

1942. The right os innominatum and the upper portion of the femur. A bullet appears to have impinged against the
b. 48. acetabulum in its lowest region, chipping the inferior border of the head of the femur. A fracture extends through the acetabulum at the point of impact, which is necrosed, nearly the entire remainder of the articular surface is carious, and a large portion of the head of the femur has been absorbed. Slight osseous deposits exist on the outer margin of the acetabulum.

Private M. B. P., "E," 6th North Carolina, (Rebel,) 36: Gettysburg, 3d July; died from pyæmia, 17th September, 1863.

Contributed by Acting Assistant Surgeon E. P. Townsend.

3865. The right os innominatum and upper extremity of the femur. A round bullet has entered obliquely from the
b. 49. right front, fractured the superior portion of the head of the femur, perforated the acetabulum and lodged in the body of the ilium without derangement to its own form. One-half of the head of the femur has been absorbed, the anterior superior third of the acetabulum is carious and partially detached; near the fundus of the acetabulum ulceration has perforated the bone; and the bullet communicates with the head of the femur by a carious channel. The missile is encircled with a wall of new bone thrown out from the irritation of its presence; there is also a considerable deposit of callus on the ilio-pubic region, causing during life a prominence in the region of Poupart's ligament. The dorsum ilii and the posterior surface of the body of the ischium show evidence of periosteal inflammation. The fracture was not diagnosed for several months.

Private H. W., "A," 3d North Carolina, 20: wounded, 16th October (?); admitted Locust Spring Hospital, from Sharpsburg, Md., 20th November, 1862; transferred to Frederick, 11th May; died, 6th July, 1863.
Contributed by Assistant Surgeon R. F. Weir, U. S. Army.
See class **XXVII.** B. B. d.

743. The right os innominatum and upper portion of the femur. The lower two-thirds of the acetabulum are destroyed
b. 50. and the greater portion of the head of the femur has been absorbed. That portion of the articulation which remains is carious. On the body of the ilium is a slight deposit of callus.
Contibuted by Acting Assistant Surgeon Redfern Davies.

1968. The bones of the right hip joint. The head of the femur was slightly fractured by a musket ball. In the
b. 51. specimen it has almost altogether been absorbed. The articular surface of the acetabulum is carious, and on the anterior and outer surface a slight fringe of callus appears. The adjacent tissues were filled with pus.
Private J. E. G., "I," 2d South Carolina, (Rebel,) 22: Gettysburg, 2d July; died exhausted, 18th October, 1863.
Contributed by Surgeon Henry Janes, U. S. Vols.

374. The bones of the right hip joint. The head and neck of the femur have been destroyed by gunshot and conse-
b. 52. quent caries and absorption. The acetabulum is perfectly destroyed as an articulation and is perforated at its fundus.
Received, without history, from Nashville.

622. The bones of the left hip joint, with a portion of the ligaments. A conoidal ball, which entered the femur at the
b. 53. level of the great tuberosity, completely fractured the neck and, as it appears in the specimen, dislocated the head and firmly lodged in the body of the ischium. The track of the ball is necrosed, but a small quantity of callus has been thrown out on the anterior surface of the femur. There was very little displacement in life.
Private J. W. C., "D," 81st Pennsylvania: Fredericksburg, 13th December; admitted hospital, Washington, 26th December, 1862; died from pyæmia, 2d January, 1863.
Contributed by Surgeon John A. Lidell, U. S. Vols.
See class **XXVII.** B. B. d.

3205. The upper extremity of the left femur, with portions of the ilium and ischium. The bullet entered one inch above
b. 54. the symphysis and to the left of the median line, shattered the ramus of the pubes, left the obturator vessels untouched, passed through the acetabulum, grooving the head of the femur, and lodged in the loose tissue beyond. The ramus of the ischium appears to have been fractured by indirect violence. The bony fragments in the track of the ball are thoroughly necrosed.
Private S. C., "K," 207th Pennsylvania: before Petersburg, probably 25th March; died, Alexandria, 7th April, 1865.
Contributed by Surgeon E. Bentley, U. S. Vols.
See classes **XI.** A. B. b.; **XXVII.** B. B d.

1410. The head, neck and great trochanter of the right femur. A conoidal ball has shattered the outer half of the head
b. 55. and completely fractured the neck. An apparently suitable case for primary excision.
Received from Ninth Corps Hospital, Army of the Potomac.
See class **XXVII.** B. B. d.

2170. The upper two-thirds of the right femur. A conoidal ball passing from above downward struck the base of the
b. 56. neck and split the bone obliquely between the tuberosities, at the same time breaking off the head and neck. Much of the articular surface is eroded and the fractured extremities are carious.
Corporal D. McD., "E," 12th New York Cavalry: Foster's Mills, N. C., 27th July; ball removed, 9th October; died from pyæmia, 1st November, 1863.
Contributed by Surgeon A. P. Frick, 103d Pennsylvania.
See class **XXVII.** B. B. d.

1728. The upper extremity of the left femur, shattered below the trochanters and involving the intracapsular portion.
b. 57. A conoidal ball comminuted the shaft below the great trochanter, upon the posterior surface of which a curved line of fracture, with the loss of the laminated bone to the width of one-fifth of an inch, passes upward beneath the capsule.
Private T. M., "C," 14th Maine, 31: Cedar Creek, 19th October; admitted hospital, Baltimore, 26th October; died from pyæmia, 5th December, 1864.
Contributed by Acting Assistant Surgeon J. G. Keller.

For other illustrations, see 1795, **XI.** A. B. e. 4.

c. Caries Dependent upon Injury to Adjacent Parts.

3849. The upper third of the right femur. The cartilage has been entirely removed from the head, which is carious, by
c. 1. ulceration following a flesh wound. The acetabulum also was carious.
Private T. J. D, "E," 18th Mississippi (Rebel): Antietam, 17th September, 1862; died from erysipelas, Frederick, 19th June, 1863.
Contributed by Assistant Surgeon R. F. Weir, U. S. Army.
See class **XXIII.** A. A.

578. c. 2. The upper fourth of the right femur. Nearly the whole of the articular surface is carious, without any perceptible injury having been directly inflicted upon the bone. The condition is the probable result of inflammation following a flesh wound.

Contributor and history unknown.

2198. c. 3. The bones of the left hip joint. The head of the femur is carious and the articular surface has been roughened by ulceration. A conoidal ball entered the thigh near the tuber ischii, but could be discovered neither during life nor after death.

Private C. S., "E," 22d Michigan, 21: Chickamauga, 20th September; admitted hospital, Nashville, 17th November, 1863; died from pyæmia, 18th February, 1864.

Contributed by Acting Assistant Surgeon H. M. Lilly.

1343. c. 4. The upper extremity of the right femur, with an oblique perforation of the great trochanter and neck. The hip joint was opened secondarily and the articular surface is roughened.

Private L. P. L., "K," 91st Pennsylvania, 17: Chancellorsville, 3d May; admitted Field Hospital, Army of the Potomac, 13th May; admitted hospital, Washington, 14th June; died from exhaustion, 25th June, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

3572. c. 5. The left innominatum and upper extremity of the femur. The ilium is very badly fractured just above the acetabulum. A plate rather more than two inches square, covered with callus, has nearly exfoliated from the centre of the ilium. Below that on the anterior border is a necrosed lamina, one inch square, yet attached; externally a moderate new osseous layer exists; and the line of the fracture is necrosed. The hip joint has been opened, apparently by secondary involvement, and the articular surfaces of both bones are eroded, with a partial loss by absorption of the iliac portion of the acetabulum.

Private J. G. A., "D," 26th Michigan: admitted hospital, Washington, 28th May; died exhausted after secondary hæmorrhage, 30th June, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See class **XI.** A. B. b.

3864. c. 6. The upper third of the right femur, fractured in the trochanter major by a small conoidal ball which passed through the ilium, penetrated the abdominal cavity and was extracted near the centre of the rectus abdominis. A very extensive amount of callus is deposited around the trochanters, and the head of the bone is nearly destroyed by suppuration.

Private W. Y., "D," 19th Massachusetts, 39: Antietam, 17th September; admitted hospital, Frederick, 28th December, 1862; slight attack of erysipelas, last of March; hip joint became involved and death occurred, 4th July, 1863.

Contributed by Acting Assistant Surgeon G. M. Paullin.

See classes **XX.** A. B. a.; **XXVII.** B. B. d.

For other illustrations, see 934, **XI.** A. B. a. 10; 3540, **XIII.** A. B. a 20; 3872, **XIII.** A. B. b. 83; 3884, **XIII.** A. B. b. 85; 3895, **XIV.** A. B. b. 7.

d. Excisions.

329. d. 1. The head of the right femur. The neck was comminuted, but the shaft was not injured. *See figure* 68.

Private F. M., 11th Pennsylvania: Second Bull Run, 30th August; admitted hospital, Georgetown, 8th September; the head, fragments and an irregular broken portion of the neck at its junction with the shaft, and the tip of the great trochanter were excised by Assistant Surgeon B. A. Clements, U. S. Army, 20th; died, 21st September, 1862.

Contributed by the operator.

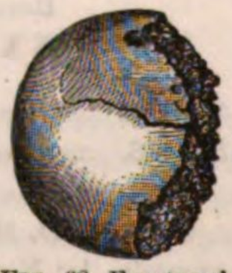

FIG. 68. Fractured and excised head of right femur. *Spec.* 329.

400. d. 2. The head and a few necrosed fragments of the neck of the right femur, excised for complete fracture of the neck by musket shot. *See figure* 69.

Private J. W. N., "K," 1st Massachusetts, 25: White Oak Swamp, 30th June; a prisoner three weeks; admitted hospital, Baltimore, 25th July; excised by Assistant Surgeon Roberts Bartholow, U. S. Army, 21st August; died from venous hæmorrhage following sloughing of the femoral vein, 25th August, 1862.

Contributed by the operator.

FIG. 69. Head and fragments of neck of right femur excised. *Spec.* 400.

3716. d. 3. The head of the right femur, fractured by a musket ball and excised after the loss of much substance by suppuration.

Private J. Z., "H," 7th Connecticut, 33: Deep Bottom, 16th August; admitted hospital, Beverly, N. J., 22d August; excised by Assistant Surgeon C. Wagner, U. S. Army, 27th September; died from exhaustion, 28th September, 1864.

Contributed by the operator.

19. The left os innominatum and upper third of the femur. The femur is fractured at the junction of the head and
d. 4. neck. The acetabulum is eroded and the extremity of the neck is carious.

Private T. C C., "D," 18th South Carolina, (Rebel,) 21: Williamsburg, 5th May; admitted hospital, Washington, 17th; head of the femur excised and bullet extracted from the obturator externus by Assistant Surgeon J. S. Billings, U. S. Army, 20th; died, 24th May, 1862.

Contributed by the operator.

9. The bones of the right hip joint. Portions of the head of the femur, whose neck was shattered, were excised
d. 5. and fragments of the neck removed. The chief articular surface of the acetabulum is carious.

Private H. T. E., "A," 11th Virginia, (Rebel.) 21: Williamsburg, 5th May; admitted hospital, Washington, 16th; excised by Assistant Surgeon J. S. Billings, U. S. Army, 17th; died from exhaustion, 28th May, 1862.

Contributed by the operator.

3049. The upper extremity of the left femur, excised one-half inch below the lesser
d. 6. trochanter, in consequence of ulceration of the joint following a contusion at the point of section by a conoidal ball, which is attached. Much of the head of the femur has been absorbed, and the remaining portion is carious. The shaft is covered with the traces of periosteal inflammation. *See figure* 70.

Private H. W., "A," 4th Vermont, 18: Spottsylvania, 12th May; admitted hospital, Washington, 25th May; excised by Surgeon R. B. Bontecou, U. S. Vols., 1st July; died exhausted, 2d July, 1864.

Contributed by the operator.

See class **XXVII.** B. B. d.

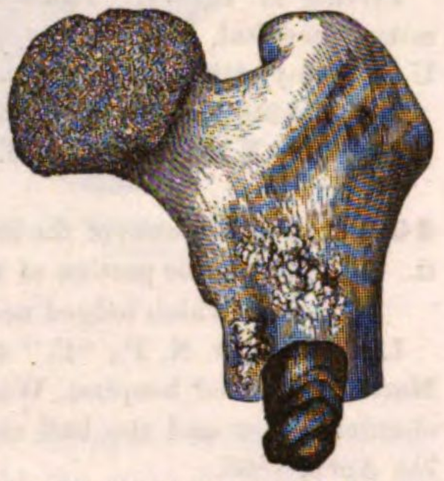

FIG. 70. Upper extremity left femur excised. *Spec.* 3049.

3593. The upper portion of the left femur.
d. 7. The great trochanter and base of the neck were comminuted by a conoidal ball at their junction. *See figure* 71.

Private P. B., "D," 59th Massachusetts, 60: Petersburg, 30th July; admitted hospital, Washington, 3d August; head and neck excised, by a section just above the trochanter minor, by Assistant Surgeon W. Thomson, U. S. Army, 5th; died, 9th August, 1864.

Contributed by the operator.

FIG. 71. Head and neck of left femur, excised. *Spec.* 3593.

328. The upper extremity of the right femur and a flattened ball. The neck
d. 8. was completely shattered and the head broken into several fragments. In the specimen the whole inner aspect of the fractured bone is necrosed. *See figure* 72.

Private C. E. M., "F," 1st Massachusetts, 19: Second Bull Run, 30th August; admitted hospital, Georgetown, 6th September; forty fragments of the neck and the head were removed by Assistant Surgeon B. A. Clements, U. S. Army, 27th; died, 30th September, 1862. The ischium and the acetabulum were discovered fractured at the time of the operation

Contributed by the operator.

See class **XXVII.** B. B. d.

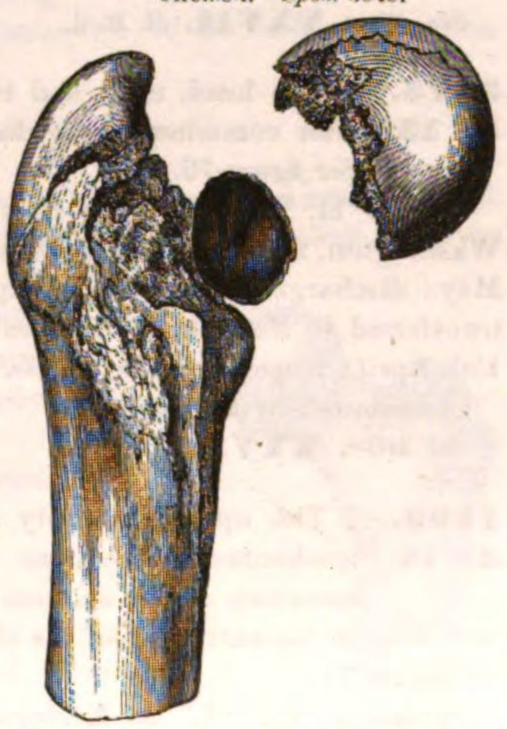

FIG. 72. Upper portion of right femur with a flattened ball that shattered the neck. Head and remains of neck excised. *Spec.* 328.

2618. The head and neck of the left femur, and seven fragments from the upper
d. 9. extremity, excised.

Captain J. P., "A," 73d New York, 22: Spottsylvania, 14th May; admitted hospital, Washington, 16th May; excised by Assistant Surgeon C. A. McCall, U. S. Army, 3d June; died exhausted, 21st June, 1864.

Contributed by the operator.

3907. The bones of the right hip joint. The femur was shattered through the
d. 10. neck, and the head has been excised. The great trochanter was split off and the upper extremity of the femur is carious and somewhat rounded. The acetabulum is carious. *See figure* 73.

Private E. H., "D," 71st Pennsylvania. 24: Antietam, 17th September, 1862; excised by Assistant Surgeon H. A. Dubois, U. S. Army, Frederick, 23d February; died, 25th February, 1863.

Contributed by the operator.

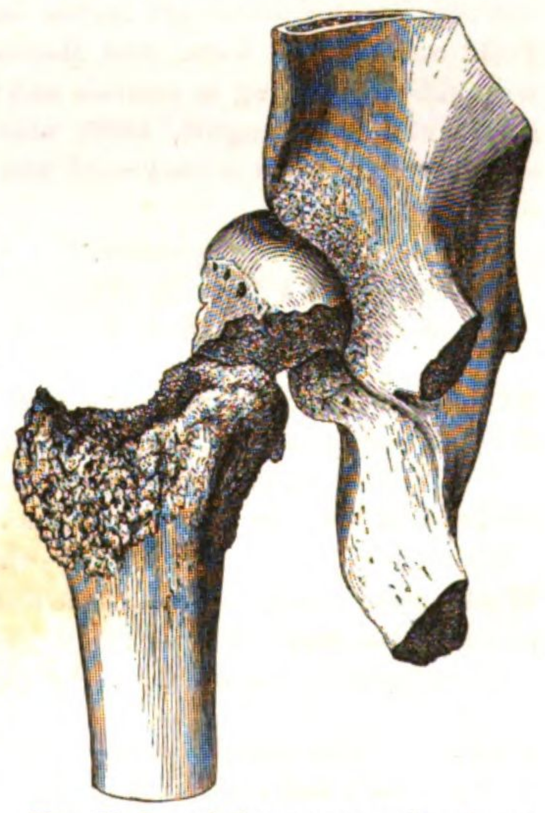

FIG. 73. Rounded upper extremity of right femur whose head has been excised. *Spec.* 3907.

3235. **d. 11.** The upper extremity of the left femur, excised through the base of the great trochanter for fracture from a conoidal ball which crushed in the anterior face of the neck and completely fractured the head at its junction therewith. The missile is mounted with the specimen. *See figure* 74.

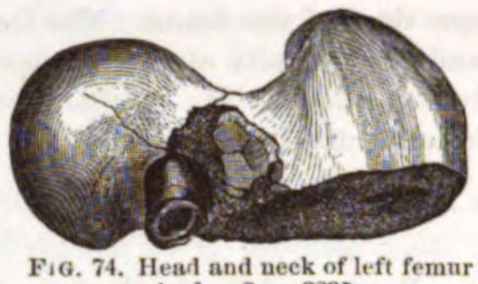

FIG. 74. Head and neck of left femur excised. *Spec.* 3235.

Private H. P., "I," 146th New York, 34: Southside R. R., 1st April; admitted hospital, Washington, 6th; excised by Assistant Surgeon W. F. Norris, U. S. Army, 8th; died from exhaustion, 21st April, 1865.

Contributed by the operator.

See class **XXVII.** B. B. d.

4048. **d. 12.** The bones of the left hip joint. The head and neck of the femur and the pubic portion of the acetabulum were comminuted by a conoidal ball which lodged near the obturator muscles. *See figure* 75.

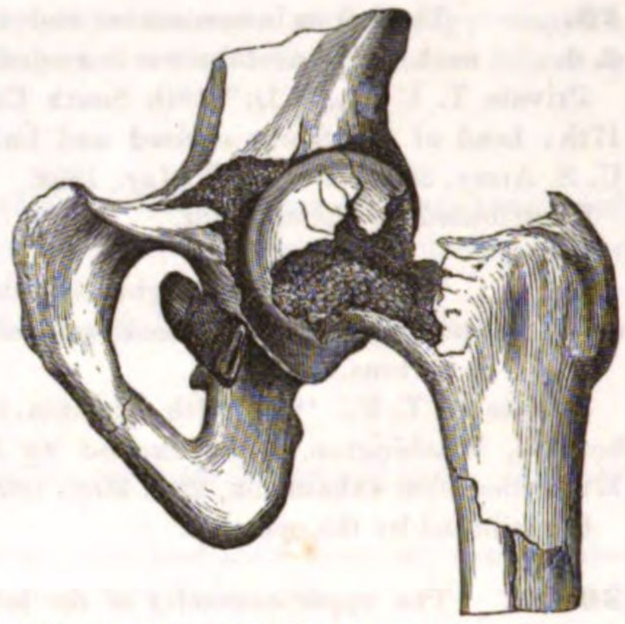

FIG. 75. Bones of left hip joint. Upper extremity of femur excised. *Spec.* 4048.

Lieutenant D. N. P., "E," 46th Virginia (Rebel): Boydton Plank Road, Va., 29th March; admitted hospital, Washington, 2d April; excised two inches below the trochanter minor and the ball removed by Surgeon D. W. Bliss, U. S. Vols., 3d; died, 7th April, 1865.

Contributed by the operator.

See class **XXVII.** B. B. d.

3375. **d. 13.** The head, neck and two inches of the shaft of the right femur, excised after comminution at the trochanters by a conoidal ball which is attached. *See figure* 76.

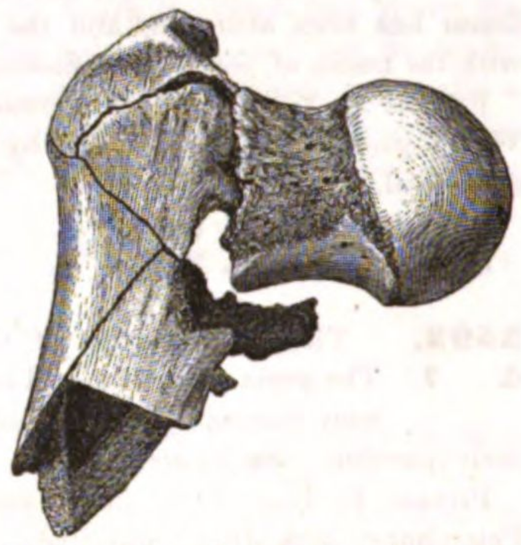

FIG. 76. Head and two inches of the shaft of right femur successfully excised. *Spec.* 3375.

Private H. W., "G," 8th New Jersey: Wilderness, 5th May; admitted hospital, Washington, 25th; excised by Assistant Surgeon Geo. A. Mursick, U. S. Vols., 27th May; discharged the service by expiration of term, unable to travel, 6th October, 1864; transferred to Newark, N. J., limb disposed to abscesses on any unusual exertion, 15th April; eloped, 6th May, 1865.

Contributed by the operator.

See 4628, **XXVI.** A. 2, 53.

1192. **d. 14.** The upper extremity of the left femur after excision just below the trochanters. The bone was shattered at the point of excision, and the specimen shows necrosis of the central portions and fragments attached by new bone at the extremity of the shaft. There are marks of disease around the neck. *See figure* 77.

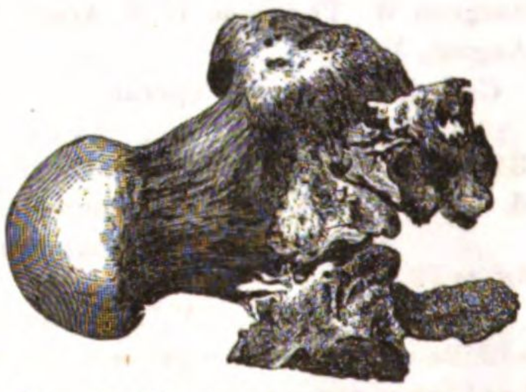

FIG. 77. Upper extremity of left femur successfully excised below the trochanters. *Spec.* 1192.

Private J. B., "I," 3d Michigan, 38: Second Bull Run, 30th August; remained upon the field three days; admitted hospital, Alexandria, 11th September, 1862: under an attempt to save the limb the patient did well for some months; the femur was squarely divided five or six inches below the tip of the trochanter major by Surgeon D. P. Smith, U. S. Vols., 21st March, 1863; the whole superior portion was removed with difficulty, owing to necrosis and the extensive deposits of new bone; discharged the service, 23d August, 1863; able to cross the limb over its fellow, and, when standing, can move it backward and forward a distance of two and a half feet, 26th September, 1865.

Contributed by the operator.

See 4629, **XXVI.** A. 3, 110.

See class **XXVII.** B. B. d.

2819. **d. 15.** The head and neck and four inches of the shaft of the right femur, excised for complete fracture with shattering through the trochanters, seven days after injury. The parts were greatly lacerated, and ill-conditioned pus burrowed in every direction at the time of the operation.

FIG. 78. Fractured head of left femur, which was excised *Spec.* 153.

Private C. C. C., "C," 2d U. S. Infantry. Wilderness, 12th May; admitted hospital, Washington, 18th; excised by Assistant Surgeon Alex. Ingram, U. S. Army, 19th; died of pyæmia, 23d May, 1864.

Contributed by the operator.

153. **d. 16.** The upper portion of the left femur, showing the head shattered by a conoidal ball and excised at its junction with the neck. The section is through the anterior surface until it meets the line of fracture. The acetabulum was chipped. *See figure* 78.

Private H. C S., "F," 122d New York, 27: Petersburg, 27th March; admitted hospital, Washington, 2d April; excised by Assistant Surgeon H. Allen, U. S. Army, 4th; died from acute peritonitis, 8th April, 1865.

Contributed by the operator.

See class **XXVII.** B. B. d.

840. The upper extremity of the left femur sawn through just below the lesser
d. 17. trochanter. An irregular fracture from a shell passes through the trochanters, and the anterior surface of the neck shows periosteal disturbance. *See figure* 79.

Private C. C., 2d Delaware: Antietam, 17th September; admitted hospital, Frederick, 19th; excised by Assistant Surgeon J. H. Bill, U. S. Army, 29th September; died from pyæmia, 4th October, 1862.

Contributed by the operator.

For other illustrations, see 592, **XII.** A. B. b. 23.

FIG. 79. Excised extremity of left femur. *Spec.* 840.

e. AMPUTATIONS.

1020. The upper two-thirds of the right femur, obliquely fractured by a conoidal ball in the upper third, with a lon-
e. 1. gitudinal fracture extending ten inches down the posterior aspect of the shaft. At the point of impact on the anterior surface a triangular fragment, with sides the length of one inch, is wanting.

Sergeant L. C., "H," 1st Delaware, 22: Petersburg, 22d October; admitted hospital, Alexandria, 2d November; disarticulated by Surgeon E. Bentley, U. S. Vols., 11th: died from pyæmia, 19th November, 1864.

Contributed by the operator.

3098. The upper half of the right femur, shattered with much loss of substance below the trochanters by a conoidal ball.
e. 2. Fissures run up within the capsule, and both of the fractured extremities are carious and have lost tissue by absorption.

Private M. O'N., "E," 58th Massachusetts, 19: Cold Harbor, 3d June; admitted hospital, Alexandria, 7th June; amputated at the hip joint by Surgeon E. Bentley, U. S. Vols., 10th August; external iliac ligated just above Ponpart's ligament for secondary hæmorrhage, 20th August; died exhausted, 1st September, 1864.

The ligature, which came away nine days after the amputation, is attached to the specimen.

Contributed by the operator.

See classes **XIII.** A. B. b; **XVIII. II.** A. B. b.

2288. The upper half of the right femur, badly comminuted below the trochanters and amputated
e. 3. at the hip joint. The bone at the seat of fracture is carious with the signs of exhaustive suppuration.

Private D. H. B., "C," 110th Pennsylvania, 24: Deep Bottom, Va., 27th July; admitted hospital, Washington, 30th July; amputated by Assistant Surgeon J. C. McKee, U. S. Army, 14th September; died, 15th September, 1864.

Contributed by the operator.

3738. The upper half of the left femur. The shaft is necrosed nearly to the trochanters. Con-
e. 4. siderable and irregular osseous deposits, from the remains of the periosteum, exist.

Private L. L., "A," 1st New Orleans Infantry, 23: thigh amputated for fracture of the knee, New Orleans, 17th July; femur disarticulated for necrosed action after erysipelas, 21st September; died, 30th September, 1864.

Contributed by Surgeon Samuel Kneeland, U. S. Vols.

See classes **XIII.** A. B. f.; **XXIII.** A. A.

84. The greater portion of the left femur, amputated at the hip joint. The specimen shows the
e. 5. shaft necrosed its entire length and covered with a fragile honeycombed involucrum. *See figure* 80.

Private J. W., "F," 13th Ohio, 44: partial fracture of middle third, Petersburg, 30th September; admitted hospital, Beverly, N. J., 7th October, 1864; a very large abscess in upper part of thigh opened, 1st February; femur found necrosed to the trochanters and amputated at the joint by Assistant Surgeon C. Wagner, U. S. Army, 17th February, 1865. Reacted in sixteen hours, but died in twenty-nine hours after the operation.

Contributed by the operator.

FIG. 80. Left femur disarticulated four and a half months after partial fracture in middle third. *Spec.* 84.

4237. e. 6. The upper two-thirds of the right femur, obliquely fractured at the base of the great trochanter, with a complete longitudinal fracture extending eight inches down the shaft.

Private G. M. S., "B," 2d New York Mounted Rifles: Dinwiddie C. H, Va., 31st March; excision of the head attempted, but the injury was found so severe that amputation at the hip joint was performed by Surgeon E. Griswold, U. S. Vols., from which reaction did not occur, 12th April, 1865.

Contributed by the operator.

FIG. 81. Right femur successfully disarticulated five months after amputation in lowest third. *Spec.* 81.

81. e. 7. The upper half of the right femur, amputated at the hip joint. The specimen shows an extensive and fragile deposit of new bone and a sequestrum occupying nearly the entire shaft about to separate. The upper extremity of the femur was sawn off by mistake in mounting the specimen, but has been replaced. *See figure* 81.

Private E. S., "A," 11th Maine, 19: right knee fractured, Deep Bottom, Va., 16th August; secondary hæmorrhage occurred and the thigh was amputated in the lowest third by Assistant Surgeon C. Wagner, U. S. Army, Beverly, N. J., 12th September; hæmorrhage recurred and the femoral was ligated in Scarpa's space, 17th October; ligature came away, 1st November; four protruding inches of the femur was removed by chain saw, 10th November, 1864; frequent abscesses formed, with swelling of the thigh, until the femur became necrosed as far as the trochanters, when it was amputated at the joint, the femoral having been tied near Poupart's ligament before the operation, 19th January: hæmorrhage occurred from the stump and the external iliac was tied, 27th January; the ligature separated after twenty days, and on the twenty-third profuse hæmorrhage recurred from the lower part of the divided artery, which was controlled by pressure maintained for fourteen days; discharged the service, "hale and strong," 27th May, 1865.

Contributed by the operator.

See 3709, **XIV.** A. B. f. 57; 4627, **XXVI.** A. 1, 29.

See classes **XIII.** A. B. f.; **XVIII. II.** A. B. b.

4386. e. 8. The left femur fractured at the junction of the upper thirds and imperfectly united with deformity, amputated at the joint seventeen months after injury. *See figure* 82.

Private G. L., "C," 6th Maryland, 30: Wilderness, 5th May; remained on the field a prisoner until 13th May; admitted hospital, Alexandria, 14th June, 1864; amputated at the hip joint by Surgeon E. Bentley, U. S. Vols., 12th October, 1865. Recovered.

Contributed by the operator.

See 4167, **XXV.** A. B. 2.

See class **XIII.** A. B. b.

710. e. 9. The upper portion of the right femur, perforated through the great trochanter, at its junction with the neck, by a conoidal ball which obliquely fractured the shaft and comminuted the bone at the trochanteric epiphysis. *See figure* 83.

Private P. J., "C," 2d Delaware: Fredericksburg, 14th December; admitted hospital, Washington, 25th; the femoral artery was divided below Poupart's ligament, and the limb was gangrenous; disarticulated by Surgeon Peter Pineo, U. S. Vols., 27th December, 1862. The operation was designed only as a palliative measure. Death occurred in a few hours.

Contributed by the operator.

See 4627, **XXVI.** A. 1, 14.

For other illustrations, see 107, **XIII.** A. B. g. 33; 4629, **XXVI.** A. 3, 113, 136, 137.

FIG. 82. Left femur successfully disarticulated seventeen months after fracture at the junction of the upper thirds. *Spec.* 4386.

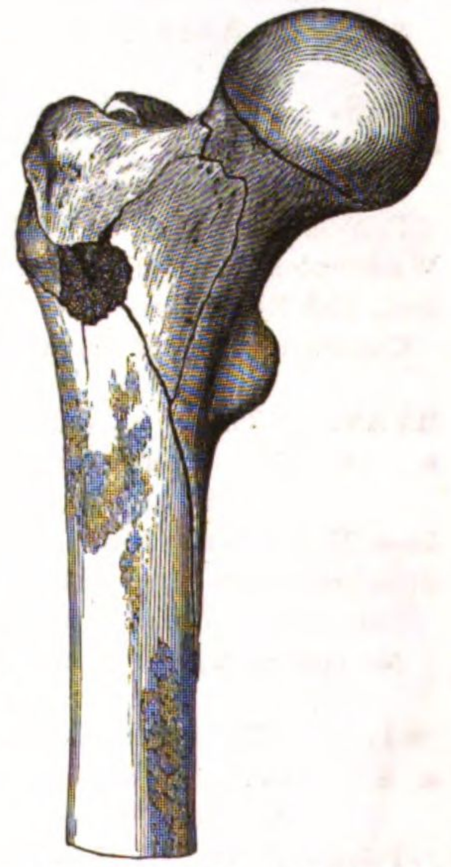

FIG. 83. Right femur perforated through great trochanter and disarticulated. *Spec.* 710.

B. Injuries not caused by Gunshot.

B. Secondary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Dislocations.
- d. Excisions.
- e. Amputations.
- f. Other operations.
- g. Sequestra and exfoliations.

c. Dislocations.

304. c. 1. The left os innominatum and upper portion of the femur, exhibiting a dislocation backward. Both of the articular surfaces are eroded, and the head of the femur rests against necrosed bone at the ilio-ischiatic junction.

There is no history to this case, which otherwise would be exceedingly interesting.

Contributed by Surgeon John T. Hodgen, U. S. Vols.

XIII. INJURIES AND DISEASES OF THE SHAFT OF THE FEMUR, INVOLVING NEITHER ARTICULATION.

- **A.** Gunshot Injuries.
  - **A.** Primary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures
    - c. Excisions.
    - d. Amputations.
    - e. Other operations.
  - **B.** Secondary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Excisions.
    - d. Amputations.
    - e. Other operations.
    - f. Stumps.
    - g. Sequestra.
- **B.** Injuries not caused by Gunshot.
  - **A.** Primary Conditions.
    - a. Contusions and partial fractures.
    - b. Impacted fractures.
    - c. Ordinary fractures.
    - d. Excisions.
    - e. Amputated fractures.
    - f. Other operations.
  - **B.** Secondary Conditions.
    - a. Contusions and partial fractures.
    - b. Impacted fractures.
    - c. Ordinary fractures.
    - d. Excisions.
    - e. Amputated fractures.
    - f. Other operations.
    - g. Stumps.
    - h. Sequestra.
- **C.** Diseases.

XIII. SHAFT OF THE FEMUR.

A. Gunshot Injuries.

A. Primary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Excisions.
- d. Amputations.
- e. Other operations.

a. Contusions and Partial Fractures.

See 3055, **XIII.** A. a. d. 2; 405, **XIII.** A. a. d. 3: 4133, **XIII.** A. a. d. 4; 1362, **XIII.** A. a. d. 5.

b. Complete Fractures.

249. The lower half of the left femur, transversely fractured in the middle third without fissuring or comminution.
b. 1. Contributed by Surgeon J. H. Brinton, U. S. Vols.

673. The middle third of the femur, nearly transversely fractured by gunshot. There are several slight fissures with no
b. 2. comminution. In the inferior portion a fissure not communicating with the fracture exists. The fragments are in very accurate apposition.
Contributed by Surgeon W. H. Leonard, 51st New York.

4030. The lowest third of the right femur, nearly transversely fractured, with a slight fissure extending upward on the
b. 3. anterior surface and a large one downward on the posterior surface.
Contributed by Assistant Surgeon S. Adams, U. S. Army.

1367. The middle third of the right femur, transversely fractured with moderate comminution and longitudinal fissuring.
b. 4. Received after Gettysburg.

4009. The shaft of the left femur, longitudinally fractured, eight and a half inches, by an iron canister shot striking the
b. 5. anterior surface. There is little comminution except at the point of impact. The missile is attached.
Contributed by Assistant Surgeon S. Adams, U. S. Army.
See class **XXVII.** B. a. c.

1470. The lower half of the left femur, very obliquely fractured upward by a conoidal ball which struck the outer edge
b. 6. of the shaft three inches above the articulation. The specimen simply illustrates the tendency of long bones to fracture in the direction of the force. The missile, somewhat split, is attached.
Contributed by Drs. Cantwell and Kibbee.
See class **XXVII.** B. b. d.

1056. A portion of the shaft of the left femur transversely fractured, with extensive oblique comminution, by a grape
b. 7. shot.
Private Nathan F.,* "F," 89th New York: Suffolk, Va., 19th April; died, 22d April, 1863.
Contributed by Surgeon T. H. Squire, 89th New York.

* This man's true name was Charles F.; his brother Nathan volunteered, but Charles assumed his name and place in the ranks, because, as a single man, he could be better spared than his brother, who had a family.

2176. The lower two-thirds of the right femur, very extensively comminuted by a conoidal ball accidentally discharged
b. 8. at three paces. The soft parts were greatly lacerated, and death occurred in a few minutes. A fair illustration of the effects of a conoidal ball at short range.

Private J. W., "F," 83d Indiana: Convalescent Camp, Nashville, 22d December, 1863.
Contributed by Surgeon John W. Foye, U. S. Vols.

92. The upper third of the right femur, completely fractured, with loss of substance on the anterior surface, at the level
b. 9. of the trochanter minor by a conoidal ball.

Contributed by Surgeon J. H. Brinton, U. S. Vols.

2160. The upper portion of the right femur, much comminuted by a missile striking the anterior surface. The lines of
b. 10. fracture radiate over a space of one and a half inches at the point of impact and more than six inches on the opposite surface.

Contributed by Surgeon G. W. McMillin, 5th East Tennessee.

1509. The lowest third of the left femur, irregularly fractured in the shaft by a fragment of shell weighing thirteen
b. 11. ounces, which is attached.

Contributor and history unknown.

See class **XXVII.** B. A. c.

c. Excisions.

2671. Five and a half inches of the shaft of the femur, split obliquely in two directions, with a flattened conoidal ball
c. 1. at the point of fracture.

Said to have been excised at Fredericksburg.

See class **XXVII.** B. B. d.

2644. Eight and a half inches of the shaft of the left femur, exhibiting a longitudinal fracture with comminution.
c. 2. Said to have been excised at Fredericksburg.

1552. Nine inches of the shaft of the left femur, said to have been excised for double oblique comminuted fracture in
c. 3. the middle third. The fracture does not extend to within three inches of the lower line of section.

Contributed by Surgeon J. H. Brinton, U. S. Vols.

For other illustrations, see 2816, **XIII.** A. B. c. 1; 2947, **XIII.** A. B. c. 3; 4719, **XXVI.** A. 4, 152.

d. Amputations.

112. The lowest fourth of the left femur, shattered by a conoidal ball.
d. 1. Major T. H., 68th Pennsylvania: Fredericksburg, 14th December, 1862; amputated same day; died of tetanus, Washington, 6th January, 1863.

Contributed by Surgeon J. B. Keasley, 2d District of Columbia.

3055. The lowest third of the left femur, chipped and bruised at the inner angle of the shaft by a ball which passed
d. 2. transversely through the popliteal space and wounded the nerve and artery. A particle of lead is impacted in the bone.

Private G. M., "C," 45th Pennsylvania, 21: Wilderness, 12th May; amputated by Surgeon R. B. Bontecou, U. S. Vols., Washington, 15th; died of pyæmia, 19th May, 1864.

Contributed by the operator.

See classes **XIII.** A. A. a.; **XXVII.** B. B. d.

405. The lowest third of the right femur, amputated for a partial fracture from a conoidal ball, which is embedded,
d. 3. point downward, in the anterior surface just above the articulation. A fissure extends upward the length of the specimen.

Private J. J. S., "B," 2d Tennessee (Rebel): Middle Creek, Ky., 10th January, 1862; amputated by Dr. Geo. H. Higgins, and died in a few hours from loss of blood.

Contributed by Acting Assistant Surgeon F. Schafhirt.

See classes **XIII.** A. A. a.; **XXVII.** B. B. d.

4133. The lowest third of the left femur, partially fractured by a conoidal ball embedding itself anteriorly and producing
d. 4. a longitudinal fracture.

Corporal P. S., "A," 208th Pennsylvania, 23: Petersburg, 25th March; amputated by Surgeon W. O. McDona'd, U. S. Vols., 26th March, 1865.

Contributed by the operator.

See classes **XIII.** A. A. a.; **XXVII.** B. B. d.

1362. The lowest third of the left femur, primarily amputated for shattering of the anterior surface by a conoidal ball
d. 5. impinging above the joint and comminuting upward without completely fracturing the shaft. The battered ball is attached.

Private J. F., "E," 52d New York.

Contributed by Surgeon J. M. Homiston, —— New York Cavalry.

See classes **XIII.** A. A. a.; **XXVII.** B. B. d.

4179. The lowest third of the left femur, obliquely fractured by a fragment of shell, which has crushed in the laminated
d. 6. structure on the anterior surface and is attached to the specimen. A probable primary amputation.

Received from the Army of the Potomac.

See class **XXVII.** B. A. c.

1886. The lowest third of the left femur, with a very extensively comminuted oblique fracture by a conoidal ball
d. 7. (attached) which perforated the shaft from without inward.

Z. T. C., "E," 60th Georgia (Rebel): Milton's Mills, Va., 27th November; amputated by Surgeon J. Dwinelle, 106th Pennsylvania, 28th November; sent to General Hospital, 4th December, 1863.

Contributed by the operator.

See 1885, **XIII.** A. A. d. 23.

See class **XXVII.** B. B. d.

2158. The lowest third of the left femur, perforated by a conoidal ball from behind, three inches above the condyles,
d. 8. with the shaft thoroughly comminuted. Primary amputation was probably performed. History unknown.

Contributed by Surgeon G. W. McMillin, 5th East Tennessee.

1397. The lowest third of the left femur, amputated for complete fracture, with shattering in the middle of the specimen.
d. 9. Lieutenant F. H. H., "F," 2d New York Heavy Artillery: Pamunky River, 1st June; amputated, Second Corps Hospital, the same day; admitted hospital, Georgetown, 4th June; died, 17th August, 1864.

Received from the Army of the Potomac.

1369. The lowest third of the right femur, after amputation in the upper part of the lowest third for extensive and
d. 10. oblique shattering by a conoidal ball which entered four inches above the joint.

Private J. L., "I," 89th Pennsylvania, 40: Monocacy, 9th July; amputated by Acting Assistant Surgeon J. H. Bartholf, Frederick, Md., 11th July, 1864; died from softening of the brain, 14th February, 1865.

Contributed by the operator.

1413. The lower half of the right femur, transversely fractured in the middle third by a conoidal ball, which is attached,
d. 11. flattened. A very small portion of the laminated structure is wanting at the point of impact on the outer surface, and directly opposite a longitudinal fissure extends into both fragments. Primary amputation has probably been performed. This specimen illustrates how little injury to the bone sometimes accompanies great change of shape in the missile. This bullet struck, with its long diameter parallel to that of the bone, when it was heated.

Contributed by Surgeon C. S. Wood, 66th New York.

See class **XXVII.** B. B. d.

3225. The lower half of the left femur, with an oblique fracture extending upward for seven inches from the base of the
d. 12. shaft at its outer posterior angle. The laminated structure is wanting for the diameter of an inch at the point of impact. From the character of the fracture the direction of the bullet appears to have been from below.

Private D. L., "I," 1st Maine Heavy Artillery: probably Spottsylvania; amputated in the field by Surgeon J. W. Lyman, 57th Pennsylvania; died, May, 1864.

Contributed by the operator.

2043. The left femur, amputated a little above the junction of the lower thirds for an extensive oblique fracture from
d. 13. a conoidal ball impacted posteriorly at the base of the shaft. The line of flight of the ball seems to have been a little upward, and the fracturing is entirely in that direction.

Private E. B., "H," 39th New York, 29: Morton's Ford, Va., 6th February; amputated by Surgeon J. Dwinelle, 106th Pennsylvania, Second Corps Hospital, 8th February; discharged the service, 1st June, 1864.

Contributed by the operator.

See class **XXVII.** B. B. d.

1233. The right femur, comminuted in the lower part of the middle third by a pistol ball which entered the thigh on
d. 14. its outer aspect, passed behind and partially around the femur and entered the inner aspect of that bone, lodging in the medullary canal. The severity of the injury is remarkable considering the deflection of the course of the ball, its diminished velocity, and its small weight, which was five scruples and six grains.

Private G. C., "K," 1st North Carolina Cavalry (Rebel): Brandy Station, 9th June; amputated near the upper third by Assistant Surgeon B. Howard, U. S. Army, at Kelley's Ford, the same day; sent to Washington, 10th; died, 24th June, 1863.

Contributed by the operator.

4001. The lower half of the right femur, amputated for a shell wound in the lowest third. A small exostosis is observ-
d. 15. able on the posterior aspect just above the point of fracture.

Captain C. H. H., "I," 14th New York Heavy Artillery: Petersburg; amputated in the field by Dr. Ingalls, 25th March.

Contributed by Assistant Surgeon S. Adams, U. S. Army.

See class **XIII.** C.

4120. The shaft of the right femur badly comminuted by a conoidal ball which has flattened, in a mushroom shape, against
d. 16. the anterior surface of the lowest third.

Private J. B., "H," 73d New York: near Petersburg; amputated in the middle third by Surgeon D. S. Hays, 110th Pennsylvania, in the field, 11th September, 1864. Recovered.

Contributed by the operator.

See class **XXVII.** B. A. c.

3759. The lower half of the left femur, amputated for comminution in the lowest third.
d. 17. Private H. C., "I," 12th Tennessee Cavalry, 20: near Nashville, 16th December; admitted hospital and amputated by Assistant Surgeon J. A. Freeman, U. S. Vols., 17th; died from exhaustion and pneumonia, 27th December, 1864.

Contributed by the operator.

177. The lower half of the left femur, amputated after fracture from grapeshot in the lowest third. The bone is swept
d. 18. off nearly transversely at the point of passage of the missile, with the chief splintering running upward.

Contributed by Surgeon J. C. Dorr, U. S. Vols.

1515. The lower half of the right femur, probably primarily amputated for a severe fracture from a conoidal ball
d. 19. entering from the rear.

From a soldier wounded at Wapping Heights, Virginia.

Contributed by Assistant Surgeon J. T. Calhoun, U. S. Army.

475. The lower half of the right femur, amputated for a severe stellate fracture from a round ball impinging against the
d. 20. outer surface and which is attached, flattened. The comminution is much greater than usually results from such missiles.

Contributed by Surgeon Leonard, 59th New York.

See class **XXVII.** B. B. d.

2039. The lower half of the left femur, badly comminuted in the middle third by a conoidal ball, which is attached,
d. 21. battered.

Private P. M., "H," 39th New York, 44: Morton's Ford, Va., 6th February; amputated in the field, 11th February; discharged the service, 5th December, 1864.

Contributed by Surgeon John Aiken.

See class **XXVII.** B. B. d.

4125. The middle of the shaft of the left femur, comminuted by a conoidal ball, which has lodged.
d. 22. Sergeant J. B., "A," 105th Pennsylvania: amputated in the middle third by Surgeon D. S. Hays, 110th Pennsylvania, 2d October, 1864. Recovered.

Contributed by the operator.

See class **XXVII.** B. B. d.

1885. The lower half of the left femur, amputated after a very oblique fracture, with comminution, from a conoidal ball
d. 23. which pierced the bone from the front.

Private T. B. H., "C," 60th Georgia (Rebel): Milton's Mills, Va., 27th November; amputated by Surgeon J. Dwinelle, 106th Pennsylvania, 28th November; died, after great exposure, 3d December, 1863.

Contributed by the operator.

See 1886, **XIII.** A. A. d. 7.

2308. The lower portion of the right femur, amputated in the upper part of the middle third for fracture, with extensive
d. 24. comminution, at the junction of the lower thirds.

Private J. O. H., "A," 1st Maine Heavy Artillery, 29: Spottsylvania, 19th May; admitted hospital and amputated by Surgeon N. R. Mosely, U. S. Vols., Washington, 22d; died, 27th May, 1864.

Contributed by the operator.

1224. The two lower thirds of the left femur, amputated for fracture of six inches at their junction.
d. 25. From the fight at Beverly Ford, 9th June, 1863.

1513. The lower portion of the right femur, probably primarily amputated in the upper third for fracture by a conoidal
d. 26. ball at the junction of the lower thirds.

From a soldier wounded at Wapping Heights, Virginia.

Contributed by Assistant Surgeon J. T. Calhoun, U. S. Army.

4110. The middle third of the shaft of the left femur with a radiate comminuted fracture, apparently from a conoidal
d. 27. ball.

Private H. J., "C," 86th New York: near Petersburg; amputated in the upper third, in the field, by Surgeon J. J. Jamison, 86th New York, 12th September, 1864. Recovered.

Contributed by the operator.

1381. The lower two-thirds of the left femur, comminuted by a conoidal ball in the middle of the shaft.
d. 28. Sergeant J. T., "F," 6th U. S. Infantry: amputated on the third day by Assistant Surgeon B. Howard, U. S. Army. Further history unknown.

Contributed by the operator.

1893. A portion of the shaft of the left femur, amputated in the upper third for an oblique comminuted fracture from a
d. 29. conoidal carbine ball.

Private I. C., "G," 8th Illinois Cavalry: shot by guerillas near Ellis' Ford, Va , 1st December; carried eighteen miles to Culpeper; amputated, 2d December; admitted hospital, Alexandria, 5th December, 1863; died, 17th January, 1864.

Contributed by Surgeon A. Hard, 8th Illinois Cavalry.

2733. The lower thirds of the left femur, perforated at their junction by a conoidal ball from the outer aspect, with large
d. 30. longitudinal fragments broken off. Apparently amputated.

Contributor and history unknown.

1380. The upper half of the shaft of the left femur, comminuted in the upper third, with great longitudinal splintering,
d. 31. and amputated just below the trochanters. The ball, striking from the rear, distinctly marked its calibre on the bone.

Private P. N., "I," 5th U. S. Artillery: Gettysburg, 2d July; amputated by Assistant Surgeon B. Howard, U. S. Army, 5th July, 1863.

Contributed by the operator.

2442. The lowest third of the right femur, shattered by the transverse passage of a conoidal ball.
d. 32. Private E. E., "H," 3d Pennsylvania Reserves, 28: Wilderness, 10th May; primary amputation above the junction of the lower thirds, performed in the field; admitted hospital, Washington, 16th; died, 19th May, 1864.

Contributor unknown.

2966. The lowest third of each femur, primarily amputated. The right femur was transversely perforated, with com-
d. 33. minution, two inches above the condyle, by a bullet which passed on, badly grooving the left femur on the anterior face at the same level and producing a severe oblique fracture.

Private D. N., "H," 22d Massachusetts, 23: Wilderness, 10th May; amputated the same day by Surgeon J. Thompson, 118th Pennsylvania; admitted hospital, Washington, 25th; died exhausted, 28th May, 1864.

Contributed by the operator.

See class **XXVII.** B. B. d.

221. The lower portion of the shaft of the right femur, very badly shattered and amputated near the junction of the
d. 34. lowest thirds.

Corporal S. McM., "C," 1st Pennsylvania Rifles (190th (?) Vols.): Spottsylvania, 11th May; amputated by Surgeon J. J. Comfort, 1st Pennsylvania Rifles, the same day; admitted hospital, Washington, 16th May, 1864; discharged the service, Philadelphia, 7th August, 1865.

Contributed by the operator.

1685. The middle third of the left femur, comminuted for six inches by fracture by a conoidal ball from the rear.
d. 35. Sergeant R. L., "H," 24th North Carolina, (Rebel,) 24: Petersburg, 16th June; amputated in the upper third the same day; admitted hospital, Portsmouth Grove, R. I., 26th June; died, 23d July, 1864.

Contributed by Surgeon W. S. Osborn, 11th Pennsylvania.

For other illustrations, see 3796, **III.** A. B. b. 24.

B. Secondary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Excisions.
- d. Amputations.
- e. Other operations.
- f. Stumps.
- g. Sequestra.

a. Contusions and Partial Fractures.

3346. The lowest third of the right femur. A musket ball appears to have contused a point (marked *a* on the specimen)
a. 1. near the inner angle, about four inches above the joint.

Sergeant W. W. R., "K," 124th New York: Petersburg, 18th June; missile and piece of cloth extracted from the popliteal space, 20th June; died in Alexandria, 15th July, 1864. The adjacent tissues were gangrenous and the knee suppurating.

Contributed by Surgeon Edwin Bentley, U. S. Vols.

See classes **XXIII.** A; **XXVII.** D.

3106. A portion of the shaft of the left femur, contused by a bullet which entered the thigh posteriorly in the upper
a. 2. third, struck the bone in the middle third, split and escaped in two pieces a little above the patella. The bone is necrosed where struck by the ball, and an abscess was found in the medullary canal corresponding to this spot.

Private J. S., "F," 69th New York: admitted hospital, Washington, 30th July; femoral ligated below the profunda by Acting Assistant Surgeon H. M. Dean, 5th August; died from pyæmia, 21st August, 1864.

Contributed by the operator.

See 3105, **XVIII. II.** A. B. b. 33; 3118, **XVIII. III.** C. B. b. 1.

3873. A section of the upper third of the shaft of the left femur, contused by gunshot. There is a very slight degree of
a. 3. caries, with more wide-spread periosteal disturbance.

Private W. W. N., "C," 7th Ohio, 23: South Mountain, Md., 14th September, 1862; died from exhaustion, Frederick, 4th March, 1863. The history is very obscure.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

4201. The upper half of the left femur, contused at the junction of the upper thirds. The seat of injury is necrosed
a. 4. and nearly separated, and the posterior surface of the bone is eroded.

Private J. K., "F," 198th Pennsylvania: died from pyæmia.

Contributed by Assistant Surgeon W. F. Norris, U. S. Army.

4341. The upper third of the left femur, contused between the trochanters on the outer and posterior border.
a. 5. Private J. W., "A," 4th New York, 19: Petersburg, 2d April, 1865; admitted hospital, Washington, 12th April; missile removed from vastus externus, 17th April; died from pyæmia, 27th April, 1865.

Contributed by Surgeon R. B. Bontecou, U. S. Vols.

1985. Five inches of the shaft of the left femur, one month after injury. A conoidal ball crushed upon two pocket knives,
a. 6. splintering them and driving the fragments into the thigh. The specimen, which is sawn longitudinally, shows a decided thickening of the periosteum, as if at a point of impact. The shaft is denser than usual and apparently somewhat hypertrophied.

Private W. H. K., "E," 17th Maine, 24: Mine Run, Va., 27th November; admitted hospital, Alexandria, 4th December; died, 22d December, 1863.

Contributed by Acting Assistant Surgeon Jona. Cass.

See 3236, **XXVII.** B. B. d. 213.

2197. The right femur, chipped and contused on the anterior and inner face by a conoidal ball which was discovered at
a. 7. the autopsy in the thyroid foramen. Traces of extensive periosteal inflammation remain.

Private G. S., "E," 88th Illinois, 27: Mission Ridge, 27th November, 1863; admitted hospital, Nashville, 30th January; died from exhaustion, 18th February, 1864.

Contributed by Surgeon C. W. Horner, U. S. Vols.

2675. The greater portion of the shaft of the right femur. The bone is necrosed at a point of contusion on the inner
a. 8. surface in the middle third, above and below which, nearly the extent of the specimen, it is greatly roughened by suppuration.

Private C. C. M., "K," 6th New York Heavy Artillery, 42: Wilderness, 9th May; admitted hospital near Alexandria, 25th May; died of pyæmia, 2d July, 1864.

Contributed by Surgeon D. P. Smith, U. S. Vols.

1104. The lower half of the left femur, severely contused, as if by a round bullet, on the outer surface of the lowest
a. 9. third of the shaft. The point of impact is necrosed, and a certain deposit of callus as well as loss of bone is observable on the posterior surface. An oblique fissure entirely around the bone may be traced by the line of repair. The specimen is a beautiful illustration of the external effects of contusion. The injury to the inner condyle appears to be a post mortem accident.

Contributor and history unknown.

740. The upper third of the left femur, exhibiting a necrosed spot on its inner aspect following a bruise and chipping
a. 10. by a musket ball. Excessive inflammation and suppuration with periostitis and ostitis followed, with consecutive inflammation of the knee and hip joints.

A. F., "H," 61st New York: Antietam, 17th September; admitted hospital, Frederick, 24th September; femoral artery ligated, 3d November; died of suppurative exhaustion, 24th November, 1862.

Contributed by Surgeon H. S Hewit, U. S. Vols.

1671. A section of the right femur with a very slight partial fracture, more properly a severe contusion. The specimen
a. 11. shows an exfoliation about to separate and necrosed action extending some depth.

Corporal J. W. J., "I," 11th New Jersey, 19: Gettysburg, 3d July; admitted hospital, Baltimore, 16th July; died from pyæmia, 16th August, 1863.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

2207. The upper third of the left femur, contused by a musket ball on its anterior surface just below the great trochanter.
a. 12. The shaft is superficially carious for several inches

Private A. H., "E," 5th Tennessee, (Rebel,) 29: Mission Ridge, 25th November, 1863; admitted hospital, Nashville, 16th February; died from suppurative exhaustion, 6th March, 1864.

Contributed by Acting Assistant Surgeon G. P. Hachenburg.

3339. The upper two-thirds of the right femur, contused on its anterior surface by an explosive musket ball. Local
a. 13. necrosis of the bone occurred, with trivial osseous deposit near by. Profuse suppuration followed the fragments of lead scattered in the thigh, the traces of which are seen in the roughening of the shaft.

O. C. H., 24: Petersburg, 24th June; died from exhaustion, in Alexandria, 24th July, 1864.

Contributed by Surgeon E. Bentley, U. S. Vols.

291. The upper third of the right femur. The shaft has been contused on the inner surface about one inch below the
a. 14. trochanter minor, where it is necrosed locally. The adjacent bone is honeycombed by suppuration.

Contributed by Surgeon John T. Hodgen, U. S. Vols.

3433. The upper third of the left femur, severely contused and partially fractured on the anterior surface of the base
a. 15. of the great trochanter, with an oblique fissure extending several inches down the shaft. The contused bone is about being thrown off, and a beautiful line of necrosis belongs to the fissure in its length. There is also a slight deposit of callus along the border of the fracture.

Private W. V., "F," 12th Pennsylvania Cavalry, 20: Winchester, 24th July; admitted hospital, Baltimore, 30th July; died of typhoid fever, 29th September, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

2132. The upper fourth of the right femur. The great trochanter is contused and partly fractured on the outer surface.
a. 16. Local necrosis has occurred. A slight fringe of callus exists on the lower border of the fracture.

Contributed by Surgeon I. Moses, U. S. Vols.

2704. The upper portion of the left femur, from which the tip of the great trochanter has been carried away by a
a. 17. conoidal ball. The joint was not involved.

Private J. F., "H," 1st Massachusetts Cavalry, 40: near Spottsylvania C. H., 27th November; admitted hospital, Alexandria, 4th December; died 13th December, 1863.

Contributed by Surgeon E. Bentley, U. S. Vols.

126. The upper extremity of the left femur. The great trochanter has been carried away by a grape shot with no
a. 18. splintering of the shaft.

Contributed by Surgeon R. H. Alexander, U. S. Army.

134. The upper half of the left femur, with a section of the shaft just below the great trochanter gouged out as if by
a. 19. a fragment of shell; the bony edges of the wound are carious.

Private A. B., "G," 152d New York, 34: admitted hospital, Washington, 3d July; extensive abscesses and erysipelas occupied the limb; died, 1864.

Contributed by Acting Assistant Surgeon H. C. Mulford.

See class **XXIII.** A. A.

3540. The upper third of the left femur, longitudinally bisected, showing an impacted pistol ball
a. 20. which penetrated the base of the neck from before and lodged in the cancellated portion.

Private J. G., "B," —— New York Heavy Artillery, 18: shot accidentally, 10th May; died of pyæmia, 1st June, 1864. Both the knee joint and hip joint were disorganized.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See classes **XII.** A. B. C; **XIV.** A. B. C.; **XXVII.** B. B. d.

916. The lower half of the left femur, penetrated in the lowest third by a musket ball, with a
a. 21. slight osseous deposit on the neighboring portion of the shaft. Particles of lead are impacted in the bone. *See figure* 84.

Sergeant L. B., "A," 7th Wisconsin: South Mountain, 14th September; refused to submit to amputation and died, Frederick, 29th December, 1862.

Contributed by Acting Assistant Surgeon G. W. Corey.

See class **XXVII.** B. B. d.

FIG. 84. Penetrating fracture of left femur. *Spec.* 916.

1788. The lower half of the right femur, illustrating the tendency of
a. 22. bone to fracture in the direction of the impinging force. A conoidal ball, fired upward from a ravine, struck the femur on its anterior face just above the patella, became impacted and partially split and nearly detached a longitudinal fragment, four and a half inches in length, which is now necrosed. *See figures* 85 *and* 86.

Private O. B. N., "K," 3d Michigan Cavalry: near Jackson, Tenn., 15th July; admitted hospital, unable, on account of erysipelas, to endure amputation, Le Grange, Tenn., 22d July; admitted hospital, with pyæmia, Memphis, 27th September; died, 2d October, 1863.

Contributed by Assistant Surgeon J. P. Wright, U. S. Army.

See 4627, **XXVI.** A. 1, 19.

See class **XXVII.** B. B. d.

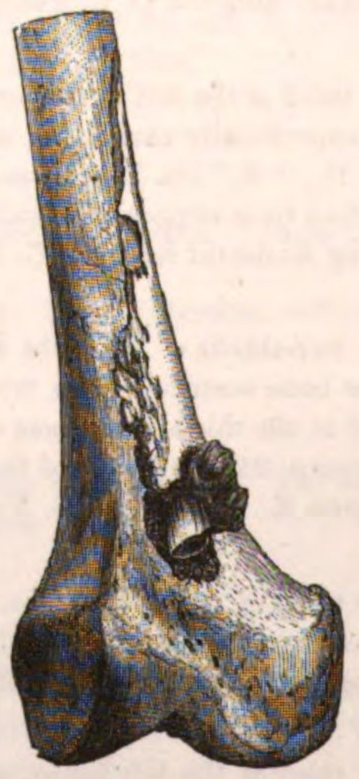

FIG. 85. Anterior view of right femur, fractured by ball from below. *Spec.* 1788.

FIG. 86. Posterior view of right femur, partially fractured by ball from below. *Spec.* 1788

140. The lowest third of the left femur, contused and partially
a. 23. fractured by a musket ball, which grooved its outer aspect, two inches above the condyles. The contused laminated structure is necrosed, the adjacent bone is carious, and periosteal inflammation has involved the greater part of the shaft in the specimen.

Color Sergeant H. D., "E," 2d New York State Militia: Second Bull Run, 30th August; admitted hospital, Washington, 28th September; died, 10th October, 1862. This man was also wounded in the arm.

Contributed by Surgeon O. A. Judson, U. S. Vols.

2995. The upper third of the left femur, partially fractured by the impact of a bullet against the anterior surface at the
a. 24. level of the trochanter minor. The laminated portion is crushed where struck and is necrosed, and a splinter of four and a half inches is loosened from the inner surface. There has been general periosteal disturbance.

Private E. P., "A," 38th Massachusetts, 19: Port Hudson, La., 14th June; admitted hospital, New Orleans, 17th June; died from exhaustion, 27th July, 1863.

Contributed by Assistant Surgeon P. S. Conner, U. S. Army.

1924. The lowest third of the left femur, grooved on the outer aspect from before backward, with a small fragment
a. 25. detached. Marked periosteal disturbance has occurred. The fracture remained without detection for six weeks.

Private S. T. G., "E," 17th Kentucky, 32: Chickamauga, 19th September; died from pyæmia, Nashville, 5th November, 1863.

Contributed by Acting Assistant Surgeon Preston Peter.

1757. The lowest third of the right femur, partially fractured by a musket ball which obliquely perforated the outer
a. 26. and posterior border of the shaft above the external condyle. The bony wound is carious.

Private M. K., 4th Ohio Cavalry: wounded, 10th July; secondary hæmorrhage controlled by ligation of popliteal, 3d August; secondary hæmorrhage controlled by ligation of large anastomotic branch, 5th; profuse secondary hæmorrhage controlled by ligation of femoral in the middle third; died from exhaustion, 14th August, 1863.

Contributor and further history unknown.

See class **XVIII. II.** A. B. b.

1932. The upper third of the left femur, perforated from before by a conoidal ball lodged in the great trochanter, which
a. 27. is partially fractured. A fringe of osseous deposit surrounds the wound of entrance, and a thin layer covers the posterior face of the bone.

Private A. J. K., "E," 8th Florida, (Rebel,) 20: Gettysburg, 2d July; died, 27th September, 1863.

Contributor and further history unknown.

2171. A portion of the shaft of the left femur, with a partial fracture in the middle third by a conoidal ball cutting out
a. 28. a segment. There was copious osseous deposit about the place of injury. The disease extended to the medullary canal.

Sergeant C. E., "I," 4th U. S. Artillery, 24: Chickamauga, 19th September; admitted hospital, Nashville, 12th October; died, it is said from exhaustion, 1st November, 1863.

Contributed by Surgeon J. W. Foye, U. S. Vols.

1594. The upper portion of the left femur, with the great trochanter badly grooved by a musket ball. The wound in
a. 29. the bone is carious, but its borders are surrounded with foliaceous callus. The urethra was cut by the ball.

Corporal J. M., "E," 39th Massachusetts, 19: Petersburg, 1st April; admitted hospital, Washington, 6th April; died exhausted, after pleuro-pneumonia, 17th August, 1865.

Contributed by Assistant Surgeon W. F. Norris, U. S. Army.

See class **XIX.** A. B. a.

1296. The lowest third of the right femur, partially fractured just above the condyles by a conoidal ball which entered
a. 30. below and externally to the head of the fibula while the limb was strongly flexed, entirely avoiding the articulation.

There are longitudinal fractures on the anterior surface with some periosteal thickening. The ball lodged in the medullary canal.

Corporal J. H., "A," 159th New York, 19: Irish Bend, La., 14th April; admitted hospital, New Orleans, 17th; secondary hæmorrhage, 24th April; died, 18th May, 1863.

Contributed by Assistant Surgeon P. S. Conner, U. S. Army.

See class **XXVII.** B. B. d.

2370. The lower half of the right femur. A bullet has chipped the outer side of the shaft of the femur, comminuting
a. 31. it for some distance. The greater part of the injury has been repaired by a firm deposit of callus, and a sequestrum is seen imprisoned in the newly formed bone.

Private A. R., "A," 2d Pennsylvania Cavalry, 19: a paroled prisoner, place and date of injury unknown; admitted hospital, Baltimore, 18th April; died from pyæmia, 22d May, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

3956. The shaft of the left femur, sawn longitudinally. The specimen shows an oblique partial fracture by a conoidal
a. 32. ball which chipped the shaft in its outer border. An extensive and compact deposit of callus has occurred over six inches, but the parts immediately injured became necrosed. The position of the sequestrum removed is shown.

Sergeant J. O'B., "F," 42d New York, 30: Antietam, 17th September, 1862; admitted hospital, with considerable deposit of callus, deep-seated abscess and necrosed bone in wound, Frederick, 15th January; sequestrum removed by Acting Assistant Surgeon W. S. Adams, 1st February; died from pyæmia, 17th February, 1863.

Contributed by the operator.

See 3898, **XIII.** A. B. g. 60.

4271. The lowest third of the left femur, showing a partial fracture of the laminated portion of the shaft just above the
a. 33. condyles posteriorly, with a longitudinal fissure upward, received from a conoidal bullet evidently nearly spent.

Corporal J. E. D., "G," 34th Massachusetts, 21: New Market, Va., 15th May; admitted hospital, Cumberland, Md., 19th May; "died, with typhoid symptoms," 15th June, 1865.

Contributed by Surgeon J. B. Lewis, U. S. Vols.

For other illustrations, see 3951, **XII.** A. B. a. 4; 1661, **XII.** A. B a. 10; 3143, **XII.** A. B. a. 17; 86, **XII.** A. B. a. 20; 844, **XIII.** A. B. d. 1; 32, **XIII.** A. B. d. 2; 1991, **XIII.** A. B. d. 3; 2437, **XIII.** A. B. d. 4; 406, **XIII.** A. B. d. 6; 186, **XIII.** A. B. d. 16; 30, **XIII.** A. B. d. 19; 2490, **XIII.** A. B. d. 22; 365, **XIII.** A. B. d. 26; 863, **XIII.** A. B. d. 47; 1409, **XIII.** A. B. d. 69; 669, **XIII.** A. B. g. 16; 3037, **XIV.** A. B. c. 12; 1957, **XIV.** A. B. c. 13; 3555, **XIV.** A. B. c. 15; 759, **XIV.** A. B. c. 16; 4230, **XIV.** A. B. c. 24; 448, **XIV.** A. B. f. 1; 535, **XVIII. II.** A. B. a. 22; 2529, **XX.** C. B. 6.

b. COMPLETE FRACTURES.

997. The lower portion of the left femur, fractured obliquely downward by the impact of a conoidal bullet in the
b. 1. middle third, apparently from above. The specimen very well shows how several lines of fracture may proceed in the same general direction after injury by such missiles.

Contributed by Surgeon J. T. Calhoun, 5th Excelsior (New York Volunteers).

2116. The lowest third of the right femur, partially fractured, as if by a fragment of shell, two inches above the condyles,
b. 2. with a complete oblique fracture extending seven inches above the joint. There was neither mobility, crepitus, nor pain, and the fracture was not detected during life.

Private W. B., "E," 14th Connecticut: Morton's Ford, 6th February; died of tetanus in hospital First Division, Second Corps, 12th February, 1864.

Contributed by Surgeon W. W. Potter, 57th New York.

4084. The lowest third of the right femur, obliquely fractured, with slight comminution, by a pistol ball. The
b. 3. popliteal artery was wounded by a spicula of bone, and death from mortification followed the ligation of the femoral below the profunda for secondary hæmorrhage.

First Lieutenant A. M. B., "A," 26th Virginia (Rebel): Burk's Station, Va., 5th April; secondary hæmorrhage and ligation of the femoral, City Point, 17th; died, Washington, 20th April, 1865.

Contributed by Acting Assistant Surgeon G. K. Smith.

See 4085, **XVIII. II.** A. B. b. 36; 554, *Urino-Genital Organs.*—MEDICAL SERIES.

1571. The lower half of the right femur. A conoidal ball entered the posterior aspect two inches above the joint,
b. 4. cleanly cutting the laminated structure. From this point an oblique fracture extends five inches up the shaft, which thus far is shattered. On the anterior surface the bone is broken one and a half inches inferiorly.

Contributor and history unknown.

1825. The lower third of the left femur, obliquely fractured, with much comminution, by a conoidal ball which
b. 5. remained, greatly contorted, in the popliteal space.

Private A. C., "K," 6th Maine: Rappahannock Station, Va., 7th November; admitted hospital, Washington, 9th; died, 20th November, 1863.

Contributed by Surgeon John A. Lidell, U. S. Vols.

See class **XXVII.** B. B. d.

471. The lowest third of the right femur, perforated two inches above the patella by a conoidal ball which fractured
b. 6. the bone obliquely, upward for two inches and downward to the epiphysis.

Private J. E. G., "D," 15th Michigan, 18: Corinth, 3d October; admitted hospital, St. Louis, 18th October; died, 13th November, 1862.

Contributed by Surgeon John T. Hodgen, U. S. Vols.

3670. The lower half of the left femur, perforated above the condyles, by a round pistol ball that is yet embedded, and
b. 7. obliquely fractured with comminution. The entire shaft in the specimen is superficially necrosed.

F. M., unassigned recruit: shot in the act of desertion and admitted hospital, Philadelphia, 15th August; died from exhaustion, 30th September, 1864.

Contributed by Acting Assistant Surgeon J. A. McArthur.

See class **XXVII.** B. B. d.

2397. The lower half of the left femur. The shaft is transversely fractured, with comminution upward, in the lowest
b. 8. third, and the necrosed bone near the fracture is bordered by commencing lines of separation.

Private R. N., "F," 13th Massachusetts, 27: Wilderness, 7th May; admitted hospital, Washington, 28th May; died, 2d June, 1864.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

4060. The greater portion of the left femur, comminuted from perforation in the lowest third by a conoidal ball. Lines
b. 9. of necrosis enclose five inches of the shaft, above which slight periosteal inflammation has occurred.

Private J. S., "H," 69th New York, 20: Petersburg, 25th March; admitted hospital, Washington, 1st April; fragments removed, 4th; died of pyæmia, 12th April, 1865.

Contributed by Acting Assistant Surgeon G. K. Smith.

See 4061, **XVIII. III.** C. B. b. 2.

2107. The lower half of the left femur, obliquely fractured in the lowest third by a conoidal ball. There is much
b. 10. shortening and some lateral deformity, with a trivial deposit of callus near the line of necrosis. Extensive abscesses occupied the thigh.

Corporal M., 149th New York, 20: Ringgold, Ga., 26th November, 1863; died from exhaustion, 7th January, 1864.

Contributed by Acting Assistant Surgeon H. S. Kilbourne.

2126. The upper portions of the right tibia and fibula, and the lower half of the femur. The femur is shattered in
b. 11. the lowest third, with marked necrosis and moderate callus. The knee was secondarily involved.

Private W. H. B., "G," 2d Kentucky Cavalry: Chickamauga, 20th September; a prisoner eight days; died, Murfreesboro', 9th November, 1863.

Contributed by Surgeon I. Moses, U. S. Vols.

See class **XIV.** A. B. c.

1182. The lower half of the left femur, comminuted in the lowest third with loss of substance, and showing a moderate
b. 12. deposit of callus and some attempt to throw off necrosed bone.

Contributor and history unknown.

747. The lowest third of the right femur, obliquely fractured, with comminution, four inches above the knee. A consider-
b. 13. able effusion of callus has united the fragments with the upper portion, but no union of the extremities has occurred.

Private A. R., "B," 3d North Carolina, (Rebel,) 24: Antietam, 17th September; died from exhaustion, Frederick, 6th November, 1862.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

702. A portion of the left femur, comminuted in the lowest third by a conoidal ball which entered the outer aspect and
b. 14. produced a stellate fracture. The missile is attached.

Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

See class **XXVII.** B. B. d.

2467. The lower portion of the shaft of the left femur, with a stellate fracture from a conoidal ball which appears to
b. 15. have struck it from the rear. The commencement of necrosis is observable below the fracture.

Sergeant W. P. S., "G," 50th Virginia, (Rebel,) 11th May; admitted hospital, Washington, 18th; died, 30th May, 1864.

Contributed by Acting Assistant Surgeon Nelson.

2161. The greater portion of the right femur, comminuted by gunshot at the upper part of the lowest third. The specimen
b. 16. is evidently from a young subject, and is remarkable for the slenderness of the bone.

Contributed by Surgeon G. W. McMillin, 5th East Tennessee.

3002. A portion of the left femur, obliquely fractured in the lowest third with some comminution. There is a small
b. 17. quantity of callus on the upper border, but no union nor displacement of the osseous tissue is present. The history states that the patient died from diarrhœa, "the parts around the fracture were apparently healthy," "the fragments were apparently united by ligamentous union," and the injured limb "was two inches shorter than the other."

Private B. R., "A," 1st Maine Artillery, 44: Spottsylvania, 18th May; admitted hospital, Washington, 22d May; died, 9th August, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

3800. The lower half of the right femur, badly comminuted above the condyles by a conoidal ball. The limb was
b. 18. attempted to be saved, and the effort of nature to throw off the necrosed bone is distinctly marked. A trivial deposit of callus was made. A spicula of bone was found piercing the femoral, and an abscess occupied the limb without involving the knee.

Private J. J. S., "K," 54th Pennsylvania, 28: Opequan Creek, Va., 19th September; admitted to Sheridan Field Hospital, Winchester, 3d October; died from suppuration and hæmorrhage, 9th November, 1864.

Contributed by Acting Assistant Surgeon W. L. Hammond.

3109. The lower half of the left femur, fractured in the upper part of the lowest third by an explosive ball. Two inches
b. 19. shortening occurred, with a considerable deposit of callus but no union. The extremities are necrosed.

Private H. M., "D," 98th New York, 36: Cold Harbor, 3d June; admitted hospital, Washington, 11th June; died from exhaustion, 23d August, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

1287. The lower half of the left femur, obliquely fractured, with comminution, in the lowest third. The extremities are
b. 20. necrosed, and around the superior portion a ring of callus has formed.

Private M. S., "G," 119th New York, 36: Chancellorsville, 2d May; admitted hospital, Washington, 16th June; died from pyæmia, 22d June, 1863.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

1522. A section of the right femur, fractured in the lowest third. A considerable amount of callus has been deposited,
b. 21. imprisoning the necrosed fragments, but not uniting the extremities. An excision of fragments appears to have been made.

Contributed by Surgeon J. A. Lidell, U. S. Vols.

See class **XIII.** A. B. e.

240. A portion of the right femur, obliquely fractured in the lowest third, with a considerable but irregular effusion
b. 22. of callus without union. A sequestrum has formed in the upper fragment.

Private E. A. D., "C," 5th New Hampshire: Fair Oaks, 1st June; admitted hospital, Philadelphia, 12th June; died, 5th September, 1862.

Contributed by Acting Assistant Surgeon W. Hunt.

358. The lower half of the right femur, splintered in the lowest third and partially united, without adaptation, by arches
b. 23. of callus which imprison the larger fragments, whose vitality is well retained.

Private C. G., "E," 41st New York: probably Second Bull Run, 30th August; admitted hospital, Washington, 6th September; died, 19th November, 1862.

Contributed by Acting Assistant Surgeon J. N. Gaff.

63. The lower half of the right femur, obliquely fractured, with comminution, in the lowest third. A considerable
b. 24. deposit of callus, which imprisoned several fragments, produced very partial union with shortening and displacement. A large extent of the upper fragment is deprived of periosteum.

Contributed by Assistant Surgeon J. C. McKee, U. S. Army.

311. The lower portion of the left femur, fractured obliquely with loss of substance. Above the condyles a line of
b. 25. necrosis is established around the upper extremity, with the deposit of some callus above it. A small quantity is also effused on the lower border. Several of the larger fragments which remain are coated on their periosteal surfaces.

Contributed by Surgeon B. A. Vanderkieft.

1323. The lower half of the left femur. The shaft was obliquely fractured, with some comminution, in the lowest fourth.
b. 26. Partial union, with five inches shortening and displacement backward, has resulted from the broken fragments, covered with new bone, serving as links.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

768. The lower half of the left femur, extensively fractured in the lowest third. The specimen beautifully exhibits
b. 27. the action of necrosis along the borders of the fragments and the deposits of osseous matter on the adjoining limits.

Private H. G., "E," 8th New York Cavalry: wounded by a bullet entering the leg, longitudinally traversing the thigh and entering the body, probably Antietam, 17th September; branches of femoral ulcerated, tied in Scarpa's space, and died, Frederick, 19th November, 1862.

Contributed by Surgeon H. S. Hewit, U. S. Vols.

See 855, **XVIII. II.** A. B. b. 28.

1821. The lower half of the left femur, fractured in the lowest third, with a moderate line of demarcation and effusion of
b. 28. callus on the upper extremity.

Received after Gettysburg.

3888. A portion of the left femur, fractured in the lowest third by a conoidal ball. There is considerable displacement,
b. 29. but the fragments are bound together quite firmly by callus.

Private J. L., "B," 4th New York, 34: Antietam, 17th September, 1862; died, Frederick, 5th February, 1863.

Contributed by Assistant Surgeon H. A. Du Bois, U. S. Army.

2799. The lowest portion of the left femur, with the shaft obliquely fractured above the condyles. A decided peripheral
b. 30. deposit of foliaceous callus has occurred, but the interior of the cavity is carious. There is nearly four inches shortening. The union is very moderate.

Private J. F. W., "C," 15th Kentucky: Chickamauga, 19th September, 1863; died from exhaustion, 19th May, 1864.

Contributed by Surgeon I. Moses, U. S. Vols.

1965. The lowest third of the right femur, obliquely fractured and partially united, with posterior displacement and two
b. 31. inches shortening. Very moderate deposits of callus have occurred, and the fractured extremities are carious.

Private T. B., "K," 26th North Carolina (Rebel): Gettysburg, 2d July; died, 4th September, 1863.

Received from Camp Letterman Hospital.

3343. A portion of the left femur, fractured in the the lowest third by a conoidal ball. A moderate amount of callus has
b. 32. been deposited with partial union with deformity.

Corporal W. S., "A," 118th Pennsylvania, 24: Wilderness, 7th May; admitted hospital, Alexandria, 24th June; secondary hæmorrhage, 14th July; died exhausted, 19th July, 1864.

Contributed by Surgeon E. Bentley, U. S. Vols.

1536. The lower half of the right femur, fractured in the lowest third and partly consolidated with two inches shortening.
b. 33. This specimen exhibits a fragment four inches long by one and a half wide which has preserved the vitality of its periosteal surface, by whose effusions it connects, as a bridge, the broken shaft; but the internal surface of the fragment is carious. There are other and smaller fragments entangled in the newly formed bone, some of which are necrosed and some serve as bonds. A battered fragment of lead is attached.

Private J S., "A," 55th Ohio, 20: Chancellorsville, 2d May; admitted hospital, Washington, 15th June; died from pyæmia, 31st July, 1863.

Contributed by Surgeon John A. Lidell, U. S. Vols.

See 3454, **XVIII. II.** A. B. a. 9.

See class **XXVII.** B. B. d.

1186. A portion of the left femur, obliquely fractured in the lowest third by aconoidal ball, as is supposed. Several
b. 34. large fragments serve as bonds, welded by callus, and partial union has occurred.

——— ——: Second Bull Run, 29th August, 1862; died, near Alexandria, 20th January, 1863.

Contributed by Acting Assistant Surgeon W. S. Hussleton.

3870. The lower half of the shaft of the left femur, fractured in the lowest third by a musket ball. Some of the
b. 35. fragments remain and are bound to the extremities by considerable deposits of callus, but have not united the fractured bone.

Private E. F. A., "G," 15th South Carolina, (Rebel,) 31: South Mountain, 14th September; admitted hospital, Frederick, 17th September, 1862; union quite firm, 6th January; accidentally re-fractured with four inches shortening, 12th January; gradually extended; died from exhaustion, 25th February, 1863.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

3267. A portion of the left femur, fractured, with much comminution, by a conoidal ball in the
b. 36. lowest third. The parts are not in position, but are firmly held together by bands of callus. The missile rests in the centre on carious bone. *See figure* 87.

First Sergeant S. T. D., "G," 1st Maine Heavy Artillery, 28: Spottsylvania, 19th May; admitted hospital, Washington, 22d May; died from exhaustion, 26th September, 1864.

Contributed by Acting Assistant Surgeon J. M. Downs.

See 4627, A. 1, 35.

See class **XXVII.** B. B. d.

FIG. 87. Left femur, with extensive new bone formation after fracture. *Spec.* 3267.

3882. The lowest third of the left femur, showing a fracture from a conoidal ball firmly united by
b. 37. profuse bone deposits, with lateral deformity and two and a half inches shortening. The lower fragment makes with the shaft an angle of about 15° forward.

Private M. S., "K," 6th Louisiana, (Rebel,) 30: wounded with five balls, fracturing both thighs, Antietam, 17th September, 1862; died from exhaustion, Frederick, 22d April, 1863.

Contributed by Acting Assistant Surgeon G. M. Paullin.

See 3881, **XIII.** A. B. b. 175.

380. The lower half of the left femur. The shaft, badly comminuted by a conoidal ball from the rear, may be
b. 38. regarded as a typical illustration of fracture of a long bone by such a missile at short range.

Contributor and history unknown.

2486. The shaft of the left femur, comminuted in the middle third by a conoidal ball with extensive longitudinal
b. 39. fracture. The greater portion of the specimen is superficially necrosed.

Private T. H., "D," 1st Michigan Sharpshooters, 20: Spottsylvania C. H., 10th May; admitted hospital, Washington, 26th May; died from exhaustion, 10th June, 1864.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

3029. A section of the shaft of the right femur, perforated by a conoidal ball, which caused a stellate fracture in the
b. 40. lowest third. There is scarcely any positive reparative action, but the lines of necrosis are clearly marked on the border of the fracture.

Lieutenant R. M. M., "A," 45th North Carolina, (Rebel,) 24: before Washington, 12th July; admitted hospital, 17th July; died from pyæmia, 12th August, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

3163. The middle of the shaft of the left femur, transversely fractured by a conoidal ball which is preserved, flattened,
b. 41. with the specimen. Additionally, oblique and longitudinal fractures for five inches increase the injury.

Corporal D. R., "B," 1st U. S. Artillery, 27: admitted hospital, Washington, 24th August; died with erysipelas, 30th August, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

See classes **XXIII.** A. A.; **XXVII.** B. B. d.

3648. A portion of the shaft of the right femur, fractured nearly transversely in the middle third by an unknown
b. 42. missile in an explosion of ordnance stores. The necrosed bone is nearly separated by well-marked lines. A trivial amount of callus is observed.

E. B., civilian, (negro,) 50: injured, 15th August; died from exhaustion, West Philadelphia, 12th September, 1864.

Contributed by Acting Assistant Surgeon A. Louis Eakin.

2140. A portion of the shaft of the femur, perforated in the middle third, with comminution. The specimen shows
b. 43. strongly marked lines of separation in the effort to throw off the necrosed bone, which is the more notable as death is said to have followed the injury within a fortnight.

Private B. B. S., "C," 10th Kentucky: Chickamauga, 20th September, 1863.

Contributed by Surgeon I. Moses, U. S. Vols.

1338. The greater portion of the shaft of the left femur, transversely fractured in the middle third, with splintering and
b. 44. comminution, by a conoidal ball which, partly split, is attached to the specimen. The bone is necrosed at the point of fracture, and is eroded by suppuration throughout the greater part of the specimen. This man fell without experiencing pain, and was admitted hospital with no external wound of the thigh. The fracture was detected and attributed to a spent round shot. After death a closed wound of entrance was found near the knee, the tortuous track of which had prevented the escape of pus.

Private J. McL., "B," 5th Wisconsin, 21: Second Fredericksburg, 3d May; admitted hospital, Washington, 8th May; the knee became secondarily involved, with great accumulation of pus; died from exhaustion, 16th June, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See classes **XIV.** A. B. c.; **XXVII.** B. B. d.

2717. The middle third of the left femur, obliquely and longitudinally fractured by gunshot. Marks of necrosis border
b. 45. the fracture.

Private F. A. L., "B," 2d New Hampshire, 24: Cold Harbor, 3d June; died of pyæmia, in Washington, 29th June, 1864.

Contributed by Acting Assistant Surgeon W. S. Herriman.

3313. A portion of the shaft of the left femur, showing a double oblique comminuted fracture in the middle third, with
b. 46. the fragments eroded.

Private W. C., "A," 13th Tennessee Cavalry: Fort Pillow, Tenn., 12th April; admitted hospital, Mound City, Ill., 14th April; died from pyæmia, 8th May, 1864.

Contributed by Surgeon H. Wardner, U. S. Vols.

2686. The middle third of the left femur, with an oblique fracture, comminuted without displacement at the point of
b. 47. impact. The periosteum was denuded for nine inches. The patient was highly tuberculous.

Private A. J. T., "B," 5th New Hampshire, 36: Cold Harbor, 3d June; admitted hospital, Washington, 11th; died from exhaustion after secondary hæmorrhage, 25th June, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

3909. The shaft of the right femur, comminuted, with loss of substance in the middle third, by a conoidal ball.
b. 48. Private B. D. B., "I," 14th New Jersey: Monocacy Junction, Md., 9th July; admitted hospital, Frederick, 12th; died, 15th July, 1864.

Contributed by Acting Assistant Surgeon G. M. Paullin.

2128. The lower half of the right femur, obliquely fractured, with little comminution, by shell. A border of dead bone
b. 49. is in process of exfoliation from the upper fragment, beyond which a slight deposit of callus has been made, which, in its turn, is suffering from the suppurative action. The patient died exhausted three or four weeks after receiving the injury.

Contributed by Surgeon I. Moses, U. S. Vols.

3526. The greater portion of the left femur. A conoidal ball struck the anterior aspect near the junction of the upper
b. 50. thirds and produced an oblique fracture of four inches downward. On the posterior surface a fissure extends from the fracture to the trochanter minor, seven and a half inches. A small fragment is chipped at the point of impact without further comminution.

Private G. L., "K," 22d Massachusetts, 29: Spottsylvania, 12th May; admitted hospital, Washington, 14th; died from exhaustion, apparently induced by transportation, 22d May, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

3168. The greater portion of the right femur. A conoidal ball impinged against the inner aspect a little below the
b. 51. middle, producing a double-curved oblique fracture.

Private J. H. W., "H," 125th New York, 21: Hatcher's Run, Va., 2d April; admitted hospital, Washington, 6th; died, 10th April, 1865.

Contributed by Assistant Surgeon W. F. Norris, U. S. Army.

1907. The left femur, comminuted in the centre of the shaft by a conoidal ball which previously passed through the
b. 52. right thigh and is attached to the specimen much flattened. The missile must have struck with its long diameter parallel to that of the shaft. *See figure* 88.

Private J. D., "I," 57th Pennsylvania, 28: Rapidan, 27th November; admitted hospital, Alexandria, 4th December; died from exhaustion, 13th December, 1863.

Contributed by Acting Assistant Surgeon Jona. Cass.

See 4627, **XXVI.** A. 1, 4.

See class **XXVII.** B. B. d.

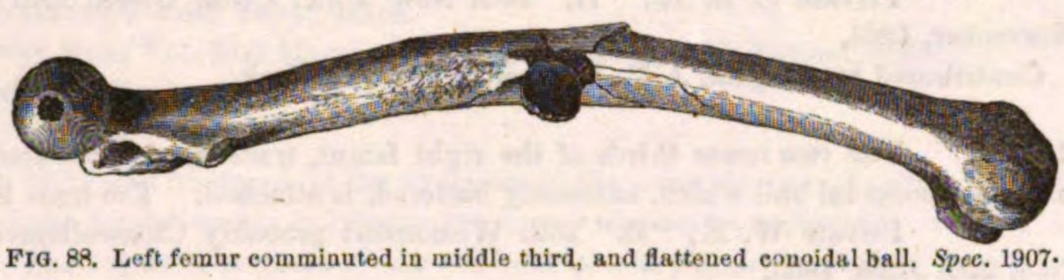

FIG. 88. Left femur comminuted in middle third, and flattened conoidal ball. *Spec.* 1907.

1573. The left femur, seventeen days after fracture by a pistol ball at the junction of the upper thirds. There is an
b. 53. oblique fracture with an extensive longitudinal fissure, but no attempt at repair.

R. D., teamster, colored, 60: Falls Church, Va., 1st April; admitted hospital, Washington, 2d: died from exhaustion, 17th April, 1865.

Contributed by Brevet Captain W. F. Norris, Assistant Surgeon, U. S. Army.

1961. The greater portion of the left femur, showing a comminuted longitudinal fracture from the middle third. Lines
b. 54. of demarcation mark the attempt to throw off the dead bone, and a very slight deposit of callus exists.

Received after Gettysburg.

1035. The left femur, comminuted in the middle third. The jagged extremities of the fracture are necrosed, and a slight
b. 55. osseous deposit on the border occurs. The anterior trochanteric line is excessively developed in this specimen.

There is no reliable history of this case.

3934. The shaft of the right femur, transversely fractured in the middle. There is a border of necrosed bone at the
b. 56. point of injury, and the upper half is greatly roughened by suppuration from the upper extremity.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

1340. The right femur, badly comminuted, with loss of substance, in the middle third by a conoidal ball. The necrosed
b. 57. fragments are partially separated.

Private G. W. A., "A," 77th New York, 44: Chancellorsville, 3d May; admitted hospital, Washington, 8th May; died from exhaustion, 12th June, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

3896. A portion of the shaft of the left femur, badly comminuted at the junction of the lower thirds by a conoidal ball.
b. 58. The fragments are much necrosed, and there is an irregular deposit of inferior callus upon the upper extremity.

Corporal J. L., "H," 126th Ohio, 24: Monocacy Junction, Md., 9th July; died from exhaustion, Frederick, 3d September, 1864.

Contributed by Acting Assistant Surgeon J. C. Shimer.

779. The two lower thirds of the right femur, amputated for an exceedingly comminuted fracture. A small osseous
b. 59. deposit occurs at the base of the line of health in the upper extremity.

Private J. M. M., "E," 27th Georgia, (Rebel,) 22: Antietam, 17th September; admitted hospital, Frederick, 4th October; amputated, 10th; died. 21st October, 1862.

Contributed by Acting Assistant Surgeon North.

See 871, **XVIII. II.** A. B. c. 10.

3733. The two lower thirds of the right femur, obliquely fractured in the middle by gunshot. The lines of demarcation
b. 60. of the necrosed fragments are beautifully shown, and there is an extensive sequestrum in the upper part. The callus thrown out is small in quantity and produced no union.

Private C. C., "F," 4th New Jersey, 38: Cedar Creek, 19th October; died, 13th December, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

1895. The greater portion of the left femur, obliquely fractured with comminution at the junction of the lower thirds.
b. 61. There has been a moderate effusion of callus. One bony fragment is attached to the upper portion at an angle of 45°.

Received after Gettysburg.

3788. The shaft of the right femur, badly comminuted in the middle by a conoidal ball. The lines of necrosis are
b. 62. well marked, and there are slight irregular deposits of callus.

Private L. S. E., "H," 90th New York: Cedar Creek, 19th October; died from exhaustion, Winchester, 30th November, 1864.

Contributed by Surgeon J. P. Wagner, 114th New York.

1322. The two lower thirds of the right femur, transversely fractured, with extensive longitudinal comminution, by a
b. 63. conoidal ball which, extremely battered, is attached. The bone is diseased for six inches above the fracture.

Private W. S., "B," 26th Wisconsin: probably Chancellorsville; admitted hospital, Washington, 15th June; died, 25th June, 1863.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

See class **XXVII.** B. B. d.

238. A portion of the left femur, badly fractured for eight inches in the lower thirds. A flattened conoidal ball rests
b. 64. at the centre of comminution, and the fragments are slightly fringed with callus.

Private E. R., Palmetto Sharpshooters, (Rebel,) 27: Fair Oaks, 1st June; admitted hospital, Philadelphia, 8th June; died, after hæmorrhage, 17th July, 1862.

Contributed by Acting Assistant Surgeon W. Hunt.

See class **XXVII.** B. B. d.

3955. A portion of the shaft of the right femur, showing an oblique fracture with comminution from a conoidal ball at
b. 65. the junction of the lower thirds. There is marked loss of substance with some callus effused, but no union accomplished.

Corporal L. P., "F," 60th Georgia, (Rebel,) 41: Monocacy Junction, Md., 9th July; died from exhaustion, Frederick, 12th September, 1864.

Contributed by Acting Assistant Surgeon T. E. Mitchell.

1970. The lower portion of the left femur, fractured at the junction of the lower thirds by a conoidal ball. The
b. 66. extremities slightly lap, but the deposit of callus is insignificant.

Private W. F. D., "I," 16th North Carolina, (Rebel,) 30: Gettysburg, 1st July; died from exhaustion, 13th October, 1863.

Contributed by Acting Assistant Surgeon E. A. Kœpner.

3335. The lower half of the right femur, badly comminuted at the junction of the lower thirds. The fragments are
b. 67. tolerably well enveloped and fixed by callus in irregular positions, but no union of the shaft occurred.

Private W. T., "C," 76th New York: Wilderness, 5th May; admitted hospital, Alexandria, 14th June; died from exhaustion, 24th July, 1864.

Contributed by Surgeon E. Bentley, U. S. Vols.

1030. The left femur, badly comminuted in the middle third, with the fragments, some of which are necrosed, enveloped
b. 68. in much spongy callus. A moderate degree of union had occurred, which was destroyed in preparing the specimen.

Private T. J. L., 2d Texas, (Rebel,) 17: Shiloh, 7th April; admitted hospital, Cincinnati, 18th April; died from exhaustion, 7th July, 1862.

Contributed by Acting Assistant Surgeon J. H. Murphy.

2684. The greater portion of the shaft of the left femur, fractured in the middle third by gunshot. In life the fragments
b. 69. overlapped four inches The extremities were necrosed and a certain amount of callus retained the spiculæ without causing union.

Private E. B. B., "A," 5th New Jersey, 45: admitted hospital, Washington, 26th May; died from exhaustion, 25th June, 1864.

Contributed by Acting Assistant Surgeon A. Ansell.

1043. The left femur, showing the formation of an immense sequestrum in the lower half, following fracture of the
b. 70. middle third. This subject was admitted to hospital, six weeks after the injury, with what was considered to be a partial fracture from a musket ball (probably round) at short range. There was neither shortening, crepitus, nor any considerable discharge, and consolidation seemed to have occurred. The pus, however, appeared mixed with some disorganized bone. Nearly four months after the injury the femur was again broken by an accidental fall, and no reparative action could be established. The specimen shows disease of the whole lower two-thirds of the shaft.

Private C. H., "K," 7th Michigan: Antietam, 17th September, 1862; again broken by a fall, 9th January; died from exhaustion, 19th March, 1863.
Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

1781. The right femur, five months after gunshot fracture in the middle third. The limb had been treated by horizontal
b. 71. extension and is a little shortened, but the fractured ends are not in apposition, and the two portions are joined by a slender bridge formed chiefly from the fragments of old bone and in part by callus. The shaft at the point of solution is carious. A sequestrum an inch in length was removed a week before death.
Private A. D., "K," 91st New York, 28: Gravelly Run, Va., 31st March; died, Washington, 26th August, 1865.
Contributed by Brevet Captain W. Norris, Assistant Surgeon, U. S. Army.

2254. The greater portion of the right femur, obliquely fractured at the junction of the lower thirds and partly consoli-
b. 72. dated with much shortening. The new bone formation firmly retains the fragments, and is sufficiently rounded to indicate the lapse of considerable time. The adjacent surfaces of the old bone are, at places, carious.
Contributed by Surgeon D. W. Bliss, U. S. Vols.

1298. The greater portion of the right femur, shattered in the middle third by a musket ball. There is a slight deposit
b. 73. of callus beyond the lines of necrosis; that on the upper fragment is irregular in position, as though due to scraped-up periosteum.
Corporal J. R., "A," 1st Louisiana Cavalry, 32: New Iberia, 16th April; died from exhaustion, New Orleans, 5th June, 1863.
Contributed by Assistant Surgeon P. S. Conner, U. S. Army.

3892. The shaft of the right femur, obliquely fractured in the middle third. There is a slight deposit of callus, but the
b. 74. extremities are carious and not united.
Private D. A., "A," 7th Louisiana, (Rebel,) 26: Antietam, 17th September; admitted hospital, Frederick, 23d September, 1862; died from erysipelas and exhaustion, Frederick, 17th March, 1863.
Contributed by Assistant Surgeon R. F. Weir, U. S. Army.
See class **XXIII.** A. A.

2100. The greater portion of the right femur, fractured in the middle by a conoidal ball. The specimen shows a large
b. 75. amount of callus retaining fragments, with little shortening of the whole shaft. Partial union, which is believed to have occurred, was dissolved before death. The extremities proper of the shaft are carious.
Corporal J. W. P., 47th Illinois: Vicksburg, 20th May; admitted hospital, Memphis, 27th June; erysipelas occurred, 7th October; died from pyæmia, 27th October, 1863.
Contributed by Acting Assistant Surgeon R. W. Coale.
See class **XXVII.** B. B. d.

1643. The left femur, fractured in the middle third by a conoidal ball, with two immense frag-
b. 76. ments glued by callus as splints. There are several small sequestra enclosed in the large deposits of callus. The bone is shortened and unusually large. *See figure* 89.
Corporal H. B., "H," 31st New York, 22: Chancellorsville, 3d May; admitted hospital, Washington, 8th May; bullet and fragments of bone removed, 16th June; died exhausted by suppuration, 11th July, 1863.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.
See 4627, **XXVI.** A. 1, 31.

1105. The shaft of the left femur, fractured by a conoidal ball at the junction of the lower thirds
b. 77. and united with three-fourths of an inch shortening. The specimen shows several large fragments bound as splints by new bone, which is copiously deposited in a foliaceous form. Two small sequestra are enclosed.
Private T. K., "E," 28th Massachusetts, 29: Petersburg, 25th March; admitted hospital, Washington, 1st April; died from dysentery, 30th July, 1865.
Contributed by Acting Assistant Surgeon G. K. Smith.

255. The left femur, obliquely fractured in the middle third and partly consolidated by an
b. 78. excessive deposit of new bone on the posterior surface. The adjacent surfaces are carious, and a necrosed fragment remains at the upper portion.
Corporal W. F., "B," 1st U. S. Colored Troops, 20: date of wound unknown; admitted hospital, from another, Baltimore, 24th July; necrosed fragment removed, September, 1865: died with general fatty degeneration and leucocythæmia, 20th February, 1866.
Contributed by Brevet Major Geo. M. McGill, Assistant Surgeon, U. S. Army.
See 2626, **XX.** C. B. 7.

FIG. 89. Left femur, after fracture in middle third. *Spec.* 1643.

2182. The left femur, fractured at the junction of the middle and lower thirds by a
b. 79. conoidal ball. A large amount of callus has been thrown out, connecting by arches the extremities, which were not in juxtaposition. Shortening by several inches, with lateral deformity, has occurred Tubercular deposits were found in the lungs. This case is remarkable for the length of time involved. A more favorable result might have been secured if better adaptation had been made. *See figure* 90.

Private J. F. D., "D," 6th Kentucky (Rebel): Stone River, 30th December, 1862; reached Nashville, 4th April, 1863; died, 17th February, 1864.

Contributed by Acting Assistant Surgeon R. T. Higgins.

FIG. 90. Left femur united by arches of new bone after fracture in lowest third. *Spec.* 2182.

1946. The left femur, comminuted in the middle third by a conoidal ball. An irregu-
b. 80. lar deposit of callus, giving rise to partial union, has imprisoned the fragments of dead bone: There is much shortening and deformity. The whole appears to have been bathed in pus before death.

Private J. L., "C," 2d Mississippi, (Rebel,) 24: Gettysburg, 3d July; died from exhaustion, 5th October, 1863.

Contributed by Acting Assistant Surgeon E. P. Townsend.

2177. A portion of the right femur, fractured in the middle third. The extremities
b. 81. are not in apposition, but firm union occurred from a very large deposit of callus. A few small sequestra remain, and sinuses lead down to the necrosed bone. The lower half of the shaft is deprived of periosteum.

Private J. F. P., "C," 6th Indiana: Chickamauga, 20th September, 1863; admitted hospital, Nashville, from Chattanooga, 22d January; died, 6th February, 1864. Was doing well at Chattanooga and "his condition was not improved by the transit."

Contributed by Surgeon J. W. Foye, U. S. Vols.

1354. The left femur, six months after injury. The bone is fractured in the middle
b. 82. third by a conoidal ball. It has firmly united with three-fourths of an inch shortening and a little lateral displacement. The large fragments that were split off occupy the place of splints held by the callus. The point of fracture shows portions of dead bone not yet thrown off. The case at one time was looked upon as a cure, so slight was the discharge and so firm the union. The upper half of the shaft has been sawn open longitudinally.

Private J. W., "F," 21st Georgia (Rebel): Petersburg, 25th March; admitted hospital, Washington, 10th April; photographed as recovered, 15th August; died from osteo-myelitis, 23d September, 1865.

Contributed by Brevet Captain W. F. Norris, Assistant Surgeon, U. S. Army.

See 4628, **XXVI.** A. 2, 92.

3872. The right femur, fractured by a conoidal ball in the middle third and united with anterior displacement and three
b. 83. and a half inches shortening. In the involucrum of the upper fragment is imprisoned an original fragment necrosed. The entire shaft lost its periosteum and the head of the femur its articular cartilage.

Corporal S. H., "B," 4th Rhode Island, 31: Antietam, 17th September, 1862; treated in the field without splints and union occurred in about two months; erysipelas set in, 1st April; admitted hospital, Frederick, 20th May; thigh filled with abscesses, hip joint became involved and subject died, 11th June, 1863.

Contributed by Acting Assistant Surgeon J. C. Shimer.

See classes **XII.** A. B. C.; **XXIII.** A. a.

3877. The shaft of the left femur, fractured in the middle third by a conoidal ball. There is firm union with some
b. 84. displacement and two inches shortening; several of the original fragments are firmly bound as splints. The whole shaft is eroded.

Private J. G. E., "H," 14th U. S. Infantry: Antietam, 17th September, 1862; died from erysipelas and exhaustion, 27th March, 1863

Contributed by Acting Assistant Surgeon J. C. Shimer.

See class **XXIII.** A. a.

3884. The upper half of the right femur, seven months after fracture at the junction of the upper thirds united by four
b. 85. bridges. The specimen shows several of the large original fragments attached by callus and assisting in the consolidation.

Corporal P. K. W., "E," 2d Georgia, (Rebel,) 28: conoidal ball, Antietam, 17th September, 1862: doing well until roughly driven in an ambulance, Frederick, 12th March; erysipelas appeared, 17th March; the knee became greatly and the hip slightly involved, and death from exhaustion occurred, 22d April, 1863.

Contributed by Acting Assistant Surgeon G. M. Paullin.

See classes **XII.** A. B c.; **XIV.** A. B. c.

3874. **b. 86.** The shaft of the left femur, fractured at the junction of the lower thirds by a conoidal ball which "entered about three inches below and to the outer side of the patella, emerged about one inch below the popliteal space, then [entered] in about two inches above the joint posteriorly, fracturing the thigh, and emerged at the inner side of the thigh about four inches below Poupart's ligament," subject being on his knees at the time. Firm union, by a columnar net-work of callus, has occurred, with two inches shortening. A little below the trochanter is an irregular spur of callus, as if the periosteum had been torn in the upward passage of the ball. *See figure* 91.

Private D. K., "B," 3d North Carolina, (Rebel,) 34: Antietam, 17th September; erysipelas occurred, 20th December, 1862; portion of ball extracted, 14th February; continued to do well, walking with crutches, until erysipelas recurred, 15th May; died, 6th June, 1863.

Contributed by Acting Assistant Surgeon G. M. Paullin.

See class **XXIII.** A. A.

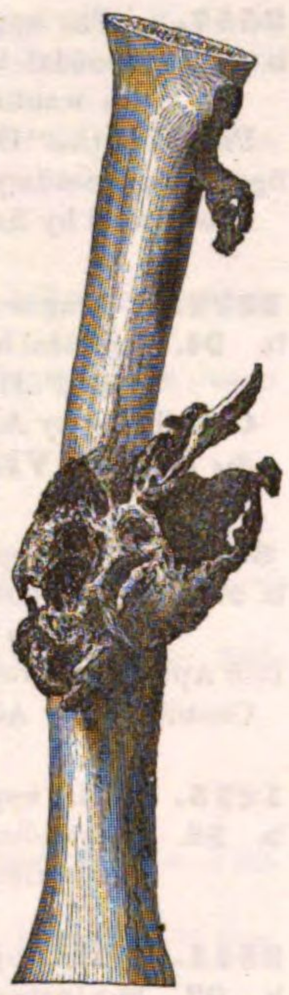

FIG. 91. Consolidated fracture in the middle third of left femur. *Spec.* 3874.

370. **b. 87.** A portion of the shaft of the right femur, fractured, with comminution, by grape, in the middle third. The specimen is a remarkable instance of reparative effort. The fragments are thoroughly involved with callus, and a large sequestrum is nearly detached. There is an accidental *post mortem* fracture of the specimen one inch below its superior border. A moderate degree of union had occurred before death.

Sergeant T. B., 93d Pennsylania, 36: Fair Oaks, 31st May; reached his home, Lebanon, Penna., by way of Fort Monroe and Philadelphia Hospitals, 26th July; died from pyæmia, 24th September, 1862.

Contributed by Dr. B. F. Schenck, of Lebanon, Penna.

305. **b. 88.** The upper third of the right femur, transversely fractured, without comminution, belo the trochanters. A fissure of two and a half inches extends down the outer aspect of the shaft The penis and scrotum were also wounded. *See figure* 92.

Private C. G., "I," 3d Delaware, 21: Petersburg, 1st April; admitted hospital, Washington, 6th; died from exhaustion, 19th April, 1865.

Contributed by Assistant Surgeon W. F. Norris, U. S. Army.

See class **XX.** A. B. b.

3013. **b. 89.** The left femur, three weeks after injury. An exceedingly oblique fracture, with a longitudinal fissure, occupies the upper half. There is no comminution. The periosteum was stripped, as if by burrowing pus, from the greater portion of the bone.

Corporal M. M., "I," 8th New York Heavy Artillery, 31: South Side R. R., Va., 31st March; admitted hospital, Washington, 6th April; died from exhaustion, 23d April, 1865.

Contributed by Brevet Captain W. F. Norris, Assistant Surgeon, U. S. Army.

1811. **b. 90.** The upper half of the left femur, fractured transversely, with oblique comminution into somewhat large fragments, in the upper third, by a conoidal ball which is attached, split and battered.

Private G. S. P., "H," 18th Massachusetts: Rappahannock Station, Va, 7th November; admitted hospital, Washington, 9th; died, 15th November, 1863.

Contributed by Acting Assistant Surgeon A. Edelin.

See class **XXVII.** B. B. d.

3261. **b. 91.** The upper third of the right femur. A conoidal ball has perforated the shaft on its anterior surface, fissuring the bone longitudinally, with some comminution and loss of substance at the point of exit.

Private M. D., "H," 14th New York Heavy Artillery: Petersburg, 26th June; admitted hospital, Washington, 1st July; died, 4th July, 1864.

Contributed by Acting Assistant Surgeon Richard Westerling.

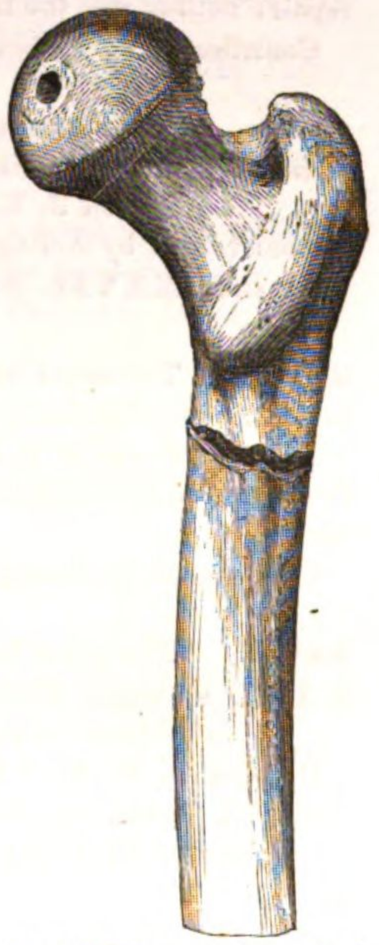

FIG. 92. Transverse gun fracture of right femur below the trochanters. *Spec.* 305.

3439. **b. 92.** The upper half of the right femur. There is a moderately oblique fracture of the middle third complicated with fissures from above. The injury appears to be the result of the impact of a ball on the inner and anterior face of the shaft, near the trochanter minor, where the laminated structure is forced inward without complete fracture, and from which a deep fissure extends down to the seat of the principal mischief. The posterior aspect of the lesser trochanter is transversely fissured, without direct communication with the original injury It is possible the bone was struck simultaneously by two balls moving with different velocities, but the specimen appears to illustrate the transmission of force to a point apart from that of the original impingement.

Private N. S., "K," 10th New Jersey, 29: Cedar Creek, 19th October; admitted hospital, Baltimore, 24th; died of sphacelus of thigh, 26th October, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

3557. The upper half of the right femur, with the greater part of the shaft obliquely fractured and comminuted by a
b. 93. conoidal ball which had previously passed through the left thigh, penis and scrotum. The smaller fragments are wanting.

Private S. C., "H," 140th Pennsylvania, 30: wounded, 29th May; admitted hospital, Washington, 4th June; the profunda ligated for secondary hæmorrhage, 10th; the femoral ligated and death occurred, 13th June, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

1272. Fragments, probably obtained after death, representing six inches of the shaft of the femur comminuted. A
b. 94. conoidal ball, greatly flattened, is attached to the specimen.

G. P. H., company and regiment unknown.

Contributed by Assistant Surgeon D. H. Strickland, 111th Pennsylvania.

See class **XXVII.** B. B. d.

65. The upper half of the left femur, with a very oblique fracture from a conoidal ball extending into the middle and
b. 95. upper thirds.

Private G. W. P., "A," 1st Maine Veteran Volunteers, 33: Petersburg, 1st April; admitted hospital, Washington, 12th April; died from exhaustion, with pyæmic symptoms, 3d May, 1865.

Contributed by Acting Assistant Surgeon G. K. Smith.

1275. The upper portion of the left femur, transversely fractured below the trochanters by a shell, with the loss of a
b. 96. longitudinal section of two and a half inches of the shaft.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

3544. The upper third of the right femur, comminuted by a conoidal ball which pierced the shaft from the outer side
b. 97. two inches below the great trochanter, wounded the membranous portion of the urethra and escaped at the left hip.

Private A. G. S., "G," 5th North Carolina Cavalry (Rebel): 12th May; admitted hospital, Washington, 18th May; died from exhaustion, 4th June, 1864. A very large abscess existed at the point of fracture There was no effort at repair; neither was the hip joint involved.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

87. The upper two-thirds of the left femur, perforated by a conoidal ball at the base of the trochanters, with longitu-
b. 98. dinal splintering. The battered bullet is mounted in the specimen.

Private J. Y., "E," 59th Alabama (Rebel): admitted hospital, Washington, 30th March; died, 31st March, 1865.

Contributed by Acting Assistant Surgeon J. P. Arthur.

See class **XXVII.** B. B. d.

3671. The upper half of the left femur, with an irregular oblique fracture, for six inches below the trochanters, from a
b. 99. conoidal ball.

Corporal R. J. M, "B," 8th Pennsylvania Cavalry, 21: White's Tavern, Va., 16th August; admitted hospital, Philadelphia, 21st August; died from exhaustion, 5th September, 1864. The periosteum was denuded for ten inches below the injury.

Contributed by Acting Assistant Surgeon A. F. B. Maury.

3828. The upper half of the left femur, extensively comminuted by perforation at the junction of the upper thirds. The
b. 100. specimen shows the necrosed portions nearly gnawn through in the effort to throw them off, but there are no evidences of positive repair.

Corporal A. M. G., "D," 6th Vermont: Berryville, Va., 21st August; admitted hospital, Frederick, Md., 14th September died, 17th September, 1864.

Contributed by Acting Assistant Surgeon W. R. McCausland

1019. The greater portion of the left femur, obliquely fractured, with comminution, in the upper third. Necrosed bone
b. 101. borders the fracture. The missile appears to have struck on the anterior surface, producing an oblique fracture downward.

Private M. C., "C," 19th Arkansas (Rebel): Arkansas Post, 10th January; admitted hospital, St. Louis, 22d; died, 29th January, 1863.

Contributed by Surgeon John T. Hodgen, U. S. Vols.

1933. The upper half of the left femur, obliquely fractured, without comminution, in the upper third. Necrosed action
b. 102. shows the death of a belt of bone along the course of the injury, where exfoliation is taking place. A very insignificant osseous deposit has been made.

Private A. N., "G," 2d South Carolina Cavalry, (Rebel,) 20: Gettysburg, 1st July; died from exhaustion, 5th September, 1863.

Contributor unknown.

3067. The upper half of the left femur, badly comminuted a few inches below the trochanters by a conoidal ball. Necrosed
b. 103. fragments are nearly separated at the line of fracture. This man lay twenty-three days without care in the enemy's hands.

Private P. W. R., "G," 2d Vermont, 22: Wilderness, 6th May; admitted hospital, Washington, 31st May; died from exhaustion, 18th June, 1864.

Contributed by Surgeon R. B. Bontecou, U. S. Vols.

2839. The upper half of the left femur, badly comminuted just below the trochanters by a conoidal ball which lodged,
b. 104. battered. The extremities are carious and partly absorbed.

Private G. H., "D," 26th Michigan, 40: Cold Harbor, 2d June; admitted hospital, Washington, 11th June; died from exhaustion, 12th July, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

See class **XXVII.** B. B. d.

1303. The upper portion of the left femur, with an extensive oblique fracture of the upper third from a conoidal ball, of
b. 105. which a portion is attached.

Sergeant C. H. C., "D," 14th Maine, 26: Port Hudson, La., 27th May; admitted hospital, New Orleans, 29th May; died from exhaustion and venous hæmorrhage, 9th June, 1863.

Contributed by Assistant Surgeon P. S. Conner, U. S. Army.

See class **XXVII.** B. B. d.

3915. The upper portion of the left femur, comminuted below the trochanters by a conoidal ball. The extremities of the
b. 106. fracture are carious. A severe shell wound was inflicted over the left ilium on the same day.

Private D. D., "C," 87th Pennsylvania: Monocacy, Md., 9th July; died from exhaustion, Frederick, 3d September, 1864.

Contributed by Acting Assistant Surgeon J. D. Mott.

4269. The shaft of the left femur, comminuted in the middle third by a conoidal ball. The specimen shows the first
b. 107. eroding efforts of nature to throw off the dead bone. No further or positive effort at repair is observable.

Private J. R., "F," 91st Ohio, 25: Winchester, 20th July; admitted hospital, Cumberland, Md., 24th July; died, 12th August, 1864.

Contributed by Surgeon J. B. Lewis, U. S. Vols.

776. The greater portion of the shaft of the right femur, shattered, with a stellate fracture, by a conoidal ball entering
b. 108. the inner aspect three inches below the trochanter minor. All the fractured portion is partially necrosed.

Private J. B. C., 27th Georgia (Rebel): Antietam, 17th September; admitted hospital, Frederick, 1st October; secondary hæmorrhage, 9th; died from exhaustion, 17th October, 1862.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

2396. The upper third of the left femur, comminuted by a conoidal ball which entered below the trochanters, and is said
b. 109. to have escaped "below (behind) knee joint." The remaining fragments and portions of the shaft bordering the fracture are necrosed.

Private H. H., "K," 2d Michigan, 18: Wilderness, 7th May; died from exhaustion, Washington, 30th May, 1864.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

2911. The shaft of the left femur, thoroughly comminuted in the middle third by a conoidal ball, a battered fragment of
b. 110. which is attached. A large abscess surrounded the fracture, the fragments of which are necrosed and in process of separation. There has been periosteal inflammation, but no creation of new bone.

Private E. C., "A," 11th Vermont: Petersburg, 23d June; admitted hospital, Washington, 4th July; died of pyæmia, 30th July, 1864.

Contributed by Surgeon J. A. Lidell, U. S. Vols.

See class **XXVII.** B. B. d.

784. The upper half of the right femur. The upper third is well shattered, as if by a conoidal ball, and the fragments
b. 111. are much eroded by suppuration.

Private S. R. W., 8th Florida, (Rebel,) 36: Antietam, 17th September; died exhausted, Frederick, 18th October, 1862.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

4158. The upper half of the left femur, very badly shattered by a conoidal ball below the trochanters, with the fragments
b. 112. and borders of the fracture necrosed.

Private J. K., "E," 49th Pennsylvania, 48: Burksville, Va., 4th April; died from pyæmia, Washington, 6th May, 1864.

Contributed by Acting Assistant Surgeon G. K. Smith.

4268. The upper half of the left femur, comminuted below the trochanters by a conoidal bullet. The borders of the
b. 113. fragments are necrosed.

Private C. G. H., "H," 12th Pennsylvania Cavalry, 23: Winchester, 23d July; died at Cumberland, Md., 30th August, 1864.

Contributed by Surgeon J. B. Lewis, U. S. Vols.

2627. The upper third of the right femur, much shattered below the trochanters. The fragments mounted with the
b. 114. specimen are necrosed, and the fractured extremities are carious. A conoidal ball, much flattened by striking on its long diameter, is attached.

Believed to be the case of Private D. McG., "H," 9th New York Cavalry.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

See class **XXVII.** B. B. d.

1342. The two upper thirds of the left femur, comminuted below and involving the trochanters. Several inches of the
b. 115. shaft are missing, and the fractured extremities are carious and partly absorbed.

Private J. S., "B," 5th Wisconsin, 44: Chancellorsville, 3d May; admitted hospital, Washington, 8th; died from exhaustion, 15th June, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

3485. A splinter, six inches in length and three-fourths of an inch in width, from the upper third of the right femur.
b. 116. A fragment of shell weighing nearly eight ounces, which was not recognized in life, is attached.

Private J. W. T., "B," 83d Indiana: Kenesaw Mountain, Ga., 27th June; died, Fifteenth Corps Field Hospital, Boston Iron Works, Ga , 9th July, 1864.

Contributed by Surgeon A. Goslin, 48th Illinois.

See class **XXVII.** B. A. c.

680. The upper half of the left femur, fractured with comminution through the trochanters, about which there is
b. 117. a meagre deposit of callus.

Contributed by Surgeon I. Moses, U. S. Vols.

1039. A necrosed fragment of bone, nearly two inches long by one-half inch wide, which came away from a compound
b. 118. fracture of the left femur in the upper third.

Private W. V. A., "A," 22d New York, 24: Antietam, 17th September, 1862; treated near the field and recovered with half an inch shortening.

Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

2301. Seven fragments, representing about two inches of the shaft of the left femur comminuted in the upper third.
b. 119. Private W. M., "B," 96th Pennsylvania, 20: wounded, 10th May; admitted hospital, Washington, 14th; died from exhaustion, 25th May, 1864.

Contributed by Surgeon O. A. Judson, U. S. Vols.

1009. The upper third of the right femur, obliquely fractured below the lesser trochanter. The posterior face of the
b. 120. great trochanter is destroyed by fracture and necrosis, and a line of callus along the fracture bears evidence of absorption. The body of the bone shows extensive caries. There is no history, but the fracture is less comminuted than is usual in gunshot.

Contributor unknown.

4202. The upper part of the right femur, shattered, with much loss of substance, just below the trochanters. The frag-
b. 121. ments are bordered by a delicate fringe of callus, with no substantial reparative effort

Private F. W., "H," 7th New Jersey: probably Petersburg; admitted hospital, Washington, 25th March; died from pyæmia, 28th May, 1865.

Contributed by Acting Assistant Surgeon H. E. Woodbury.

3710. A portion of the left femur, showing an oblique fracture from a conoidal ball in the upper third. The edges of the
b. 122. fracture are carious, and an insignificant osseous deposit has occurred

Sergeant S. V., "B," 2d Ohio: Deep Bottom, Va., 16th August; died from secondary hæmorrhage, Beverly, N. J., 29th September, 1864.

Contributed by Assistant Surgeon C. Wagner, U. S. Army.

3189. The upper portion of the right femur, shattered by the passage of a bullet through both trochanters. The head
b. 123. is injured, probably accidentally.

Private J. C., "C," 5th New York Cavalry, 21: admitted hospital, Baltimore, 30th July; died from pyæmia, 2d August, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

1807. The upper half of the right femur, comminuted below the trochanters by a conoidal ball. A very trivial amount
b. 124. of osseous deposit occurred.

Private W. N. J., "F," 149th New York: Chancellorsville, 2d May; admitted hospital, Point Lookout, 14th June; secondary hæmorrhage and death, 3d July, 1863.

Contributed by Surgeon A. Heger, U. S. Army.

788. The two upper thirds of the right femur, badly comminuted below the trochanters, with no appreciable attempt
b. 125. at repair. The fragments are carious.

Private W. H. Y., "B," 7th Maine, 30: Antietam, 17th September; admitted hospital, Frederick, 3d October; died from exhaustion, Frederick, 14th November, 1862.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

803. A portion of the shaft of the left femur, fractured in the upper third with severe comminution. A line of separa-
b. 126. tion is observable along the shaft. The lower portion was found drawn within the fragments of the others.

Contributed by Acting Assistant Surgeon A. North.

283. The upper half of the left femur, curiously fractured obliquely downward by a ball impinging on the anterior
b. 127. face of the shaft in the upper fourth. There is little splintering, but the broken bone is driven inward at the point of impact, and a band of necrosis marks the length of fracture. The callus exhibited is very trivial.

Contributed by Surgeon J. T. Hodgen, U. S. Vols.

2949. The upper portion of the left femur, perforated and comminuted below the trochanters. The parts involved in
b. 128. the fracture are carious.

Private J. S., "F," 12th New Jersey, 18: probably Cold Harbor, 3d June; admitted hospital, Washington, 11th June; died from exhaustion, 30th July, 1864.

Contributed by Surgeon N. R. Mosely, U. S. Vols.

763. A portion of the right femur, fractured in the upper third without union. The bone, where broken, is carious.
b. 129. The missile passed through the left thigh and scrotum before causing this fracture.

Private J. G. H.: South Side R. R., 31st March; died from exhaustion, Washington, 23d July, 1865.

Contributed by Acting Assistant Surgeon G. K. Smith.

See class **XX.** A. B. a.

2239. The upper portion of the left femur, fractured at the junction of the upper thirds. A small amount of callus was
b. 130. thrown out, but the line of separation of the fragments of dead bone is beautifully marked.

Sergeant W. W., "A," 7th Indiana, 26: Mine Run, Va., 28th November; admitted hospital, Washington, 6th December; secondary hæmorrhage, 17th December, 1863; died from exhaustion, 29th January, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

1976. Half of the left femur, fractured in the upper third. The upper extremity is carious, and there is a deposit of soft
b. 131. callus on the end of the lower fragment.

Contributor and history unknown.

964. The left femur, comminuted in the upper part of the middle third, with a small a nount of callus deposited on the
b. 132. fragments.

Private J. E. L.: Fredericksburg, 13th December; admitted hospital, Washington, 26th December, 1862; died, 15th February, 1863.

Contributed by Surgeon P. Pineo, U. S. Vols.

727. A portion of the left femur, comminuted below the trochanters. Many of the fragments are wanting: callus rests
b. 133. on the remainder without union of the extremities. The fracture extends over six inches.

Private O. M. W., "G," 16th Connecticut, 20: Antietam, 17th September; died from diphtheria, 3d November, 1862.

Contributed by Surgeon T. H. Squire, 89th New York.

1964. The greater portion of the right femur, fractured by a conoidal ball in the upper third. Partial union is believed
b. 134. to have occurred, but the callus, which was thrown out over a length of ten inches, is small in quantity. Several inches of necrosed bone occupy the seat of injury.

Private C. N., "C," 57th Virginia, (Rebel,) 22: Gettysburg, 3d July; died from exhaustion, 11th September, 1863.

Contributed by Acting Assistant Surgeon E. A. Kœpner.

397. A portion of the shaft of the femur, comminuted in the middle third. There is a trivial deposit of callus and a
b. 135. moderate sequestrum, but no union whatever.

Private L. H., "F," 5th Wisconsin: admitted hospital, Baltimore, 10th May; died, 21st July, 1862.

Contributed by Surgeon A. B. Hasson, U. S. Army.

2948. The upper half of the left femur, with an oblique, nearly longitudinal fracture, curiously curved. A fragment of
b. 136. bullet is embedded at a contused spot on the outer aspect below the trochanters, from which a deep fissure extends downward joining the fracture. Another point of contusion appears on the anterior face at the summit of the fracture. A few pieces of bone are in process of separation and a fringe of callus borders the fracture.

Private J. T., "E," 24th Massachusetts, 34: Petersburg, 17th June; died, Washington, 31st July, 1864.

Contributed by Surgeon E. Bentley, U. S. Vols.

659. A portion of the right femur, much shattered in the upper third. There is slight effusion of callus, but a fracture
b. 137. in one of the large fragments beautifully illustrates union with exact apposition.

Private D. T. B., "K," 53d Pennsylvania, 25: Fredericksburg, 13th December; admitted hospital, Washington, 26th December, 1862; died, 4th February, 1863.

Contributed by Acting Assistant Surgeon W. H. Ensign.

769. The greater portion of the left femur, with a very long oblique fracture through the upper third, caused by a round
b. 138. ball piercing the bone, and probably aggravated by the subject falling from his horse. The extremities are somewhat carious, and a slight deposit of callus partially bound the fragments during life. Extensive abscesses occupied the thigh.

Private R. M. B., 2d South Carolina Cavalry, (Rebel,) 28: Frederick, 14th September; died from exhaustion, 7th November, 1862.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

See 892, **XXII.** A. B. a. 9.

1100. The upper portion of the left femur, fractured just below the trochanters, with a moderate deposit of callus, but
b. 139. without union.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

737. Half of the right femur, badly fractured in the upper third. One large fragment
b. 140. is covered with a layer of soft callus, as are the borders of the others beyond the limits of the portions that are about being thrown off.

Corporal J. McI., "E," 20th Massachusetts: Fredericksburg, 14th December, 1862.

Contributed by Medical Cadet —— Kingston.

1325. A portion of the femur, fractured in the upper third by a musket ball. The ends
b. 141. of the fracture are covered with callus without union. Case treated by simple extension. *See figure* 93.

Lieutenant G., "E," 4th Minnesota: Iuka, 9th September; died, St. Louis, 18th April, 1863.

Contributed by Surgeon J. T. Hodgen, U. S. Vols.

See 4628, **XXVI.** A. 2, 96.

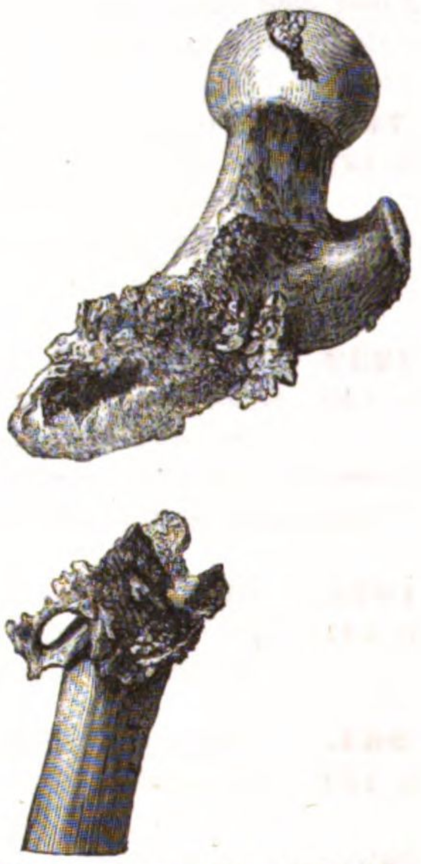

FIG. 93. Femur eight months after fracture in upper third. *Spec.* 1325.

1517. The right femur, obliquely fractured below the lesser trochanter. There is some
b. 142. osseous deposit below a region of necrosed bone covering the action of suppuration down the shaft.

Lieutenant F. B., "B," 82d Illinois, 44: Chancellorsville, 2d May; died from exhaustion, Washington, 2d August, 1863.

Contributed by Surgeon J. A. Lidell, U. S. Vols.

657. The upper half of the right femur, fractured just below the trochanters. Two large
b. 143. fragments of bone remain at the seat of fracture. A very slight effusion of callus has occurred, and the shaft forms an obtuse angle with the neck, from the action of the adductors.

Contributed without history by Surgeon D. W. Bliss, U. S. Vols.

729. Half of the right femur, comminuted in the upper third. Much of the broken bone is necrosed, and beyond the
b. 144. line of death indifferent deposits of callus appear. The point of impact is on the outer surface, where fragments of lead yet remain.

Private H. S., "E," 9th New York, 20: Antietam, 17th September; died, 27th October, 1862.

Contributed by Surgeon T. H. Squire, 89th New York.

213. The upper portion of the right femur, comminuted below the trochanters, with caries of the upper extremity,
b. 145. necrosed action along the borders of the lower fragments and slight and irregular deposit of callus.

Private H. F., "E," 6th New Hampshire: further history unknown.

Contributed by Acting Assistant Surgeon G. K. Smith.

3786. The greater portion of the right femur, fractured in the middle third by a conoidal ball. Partial union was
b. 146. believed to have taken place about six weeks after the injury, but diarrhœa then set in, and no consolidation existed when death occurred one month afterward from exhaustion. The specimen shows extensive sequestra in the lower fragment within a partial involucrum.

Sergeant J. A. B., "E," 26th Massachusetts: Winchester, 19th September; died from exhaustion, 30th November, 1864.
Contributed by Surgeon L. P. Wagner, 114th New York.

3577. A portion of the right femur, fractured in the upper third. The fragments are slightly bordered with callus, but
b. 147. there is no attempt at union.

Corporal H. R., "H," 149th Pennsylvania, 29: Spottsylvania, 8th May; admitted hospital, Washington, 26th May; died from exhaustion, 25th June, 1864.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.

4214. A portion of the right femur, fractured in large fragments by a conoidal ball in the upper thirds. The pieces are
b. 148. fringed and partially united by spongy callus, and the dead bone is in process of separation.

Private P. R., "K," 15th New York Heavy Artillery, 21: South Side R. R., 2d April; admitted hospital, Washington, 10th April; died, 3d June, 1865.
Contributed by Acting Assistant Surgeon G. K. Smith.

2059. The upper portion of the right femur, fractured just below the trochanters with some deposit of callus. In the
b. 149. specimen the fragments join at a right angle. The history is imperfect.

An unknown Rebel, wounded at Gettysburg, and admitted hospital, Chester, Penna., 19th July, 1863, so exhausted that he died the next day.
Contributed by Acting Assistant Surgeon B. Stone.

3730. The upper portion of the left femur, shattered at the junction of the upper and middle thirds, with many of the
b. 150. necrosed fragments encased in callus, but without union of the extremities of the shaft.

Private J. W. G., 1st Maine: probably Cedar Creek, 19th October; died from pyæmia, 27th November, 1864.
Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

1761. The left femur, fractured by a conoidal ball in the upper third, with large deposits of callus, but without union.
b. 151. Private W. Z., "F," 29th New York: Chancellorsville, 3d May; admitted hospital, Washington, 14th June: died, 6th October, 1863.
Contributed by Assistant Surgeon H. Allen, U. S. Army.

2946. The shaft of the left femur, fractured in the middle third, it is said by cannon shot. The dead tips of bone are
b. 152. nearly necrosed in their thickness. Osseous matter is deposited, but not sufficiently to produce union, except of fragments to the shaft.

Private J. H., "H," 100th Pennsylvania, 20: Cold Harbor, 3d June; admitted hospital, Washington, 7th June; died from exhaustion, 5th August, 1864.
Contributed by Acting Assistant Surgeon P. O. Williams.

1258. The right femur, fractured at the junction of the upper thirds. There has been marked effusion of spongy callus
b. 153. over a length of ten inches, much of which has again been absorbed. A sequestrum of some size is nearly detached from the upper portion, while to the lower portion a large fragment, which has preserved its vitality, is attached. The greater part of the shaft is, however, necrosed. A fragment of the conoidal missile is seen in the wound. At one time the patient could move his limb in the bed.

Bugler J. B., "E," 5th Michigan Cavalry, 20: South Side R. R, Va., 1st April; admitted hospital, Washington, 8th April; died from exhaustion, 7th August, 1865.
Contributed by Acting Assistant Surgeon G. K. Smith.
See class **XXVII.** B. B. d.

244. The left femur, badly shattered at the junction of the lower thirds. The broken extremities are necrosed and a
b. 154. copious deposit of spongy callus envelopes them. There is no union.
Contributed by Surgeon J. C. Dorr, U. S. Vols.

1483. The upper portion of the right femur, fractured below the great trochanter by a conoidal ball. There is con-
b. 155. siderable deposit of callus and firm union.

Private J. B. W., "F," 37th Illinois, 21: Prairie Grove, Ark., 7th December; admitted hospital, Fayetteville, Ark., 9th December, 1862; union firm, suppuration ceased, splints removed, 28th February; suppuration recurred, 15th March; necrosed fragments removed at various times, and died, exhausted, 15th May, 1863.
Contributed by Surgeon H. J. Churchman, U. S. Vols.

724. The upper half of the right femur, from an old subject, comminuted below the trochanters. The extremities are
b. 156. necrosed, and a slight fringe of callus has formed.
Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

1938. The upper portion of the left femur, fractured below the trochanters by a
b. 157. conoidal ball. The specimen shows the deposit of large quantities of foliaceous callus surrounding the extremities and involving the fragments. *See figure* 94.

Private E. W. A., "G," 5th Florida, (Rebel,) 18: Gettysburg, 3d July; died, exhausted, 15th September, 1863.
Contributed by Surgeon H. Janes, U. S. Vols.
See 4627, **XXVI.** A. 1, 5.

FIG. 94. Extensive formation of callus in upper third of left femur. *Spec.* 1938.

618. The left femur, fractured in the upper third by a spherical ball. A fragment
b. 158. nearly six inches long and one-third of the diameter of the femur was split off. A moderate amount of callus was effused at the extremities.

Private J. B., "K," 44th New York, 26: Gaines' Mill, 27th June; a prisoner several weeks; reached Philadelphia, 26th July; secondary hæmorrhage, 5th November; died, 6th November, 1862.
Contributed by Acting Assistant Surgeon J. B. Bowen.

2285. The greater portion of the left femur, with a long oblique fracture extending
b. 159. through the upper third of the shaft. There is little comminution, but the slight formations of callus are insufficient to afford union. A flattened fragment of a conoidal ball is attached.

Private G. B., "C," 15th New York Heavy Artillery.
Contributed by Acting Assistant Surgeon G. K. Smith.
See class **XXVII.** B. B. d.

333. The upper half of the right femur, very badly comminuted below and on the posterior surface of the trochanters.
b. 160. The cancellated tissue is exposed nearly to the capsular ligament. The lines of fracture are bordered by foliaceous callus, which, however, has availed nothing for union. The broken bone is carious and necrosed.
Private J. S., "A," 56th Pennsylvania; admitted hospital, Washington, 1st September; died, 7th November, 1862.
Contributed by Surgeon D. W. Bliss, U. S. Vols.

1534. The upper portion of the right femur, obliquely fractured in the upper third and bruised at the base of the great
b. 161. trochanter. There is a fringe of spongy callus without union. The specimen bears the mark of much suppuration and it appears as though some of the new bone had been lost.

Private O. F. W., "G," 154th New York, 25: Chancellorsville, 3d May; treated in Acquia Creek Hospital until sent to Washington, 14th June; died from exhaustion, 31st July, 1863.
Contributed by Surgeon D. W. Bliss, U. S. Vols.

2200. A portion of the left femur, obliquely fractured with some comminution in the upper third. There is no union
b. 162. between the extremities, which are chiefly carious, but a large fragment has become united, with displacement, to the lower portion.
Contributed by Acting Assistant Surgeon G. P. Hachenburg.

4241. The shaft of the left femur, fractured at the junction of the upper and middle thirds by a round ball. There is a
b. 163. considerable deposit of callus, and at death, which happened on the eighty-third day, from diarrhœa complicated with pneumonia, partial union had occurred with half an inch shortening. This union was broken in the post mortem examination. The muscles at the seat of fracture were contracted and had lost their elasticity from the callus deposited in them. A small sinus ran down nearly to the inner condyle, and the periosteum in its track was diseased from contact with pus.

Private A. H., "K," 5th Wisconsin, 21: Burksville, Va., 6th April; admitted hospital, Washington, 19th April; died, 28th June, 1865.
Contributed by Acting Assistant Surgeon G. K. Smith.

3787. The upper half of the left femur, fractured just below the trochanters. There is moderate necrosis and slight
b. 164. deposit of callus. "Patient insisted there was no fracture."

Lieutenant L. J., "E," 3d Massachusetts Cavalry: Cedar Creek, 19th October; died from exhaustion, Winchester, 7th December, 1864.
Contributed by Surgeon L. P. Wagner, 114th New York.

3268. The upper half of the right femur, obliquely fractured, with some comminution, below the trochanters. The
b. 165. extremities overlap a little; new bone enveloped several fragments, and at one point brought about union. The extremities are, as usual, carious.

Private T. B., "H," 2d Michigan, 28: admitted hospital, Washington, 25th May; died from exhaustion, 21st September, 1864.

Contributed by Acting Assistant Surgeon S. Graham.

1810. A portion of the left femur, shattered below the trochanters by a round ball. There is considerable effusion of
b. 166. callus, but no union seems to have occurred. The missile is attached to the specimen.

Private F. S., "C," 121st New York: Chancellorsville, 3d May; admitted hospital, Point Lookout, Md., 14th June; died from exhaustion, 11th July, 1863.

Contributed by Surgeon A. Heger, U. S. Army.

See class **XXVII.** B. B. d.

2070. The upper portion of the left femur, obliquely fractured through the lesser trochanter, with a moderate deposit of
b. 167. callus, but without union.

Private E. V., "F," 13th South Carolina (Rebel): Gettysburg, 3d July: died from exhaustion, Chester, Penna, 13th October, 1863.

Contributed by Acting Assistant Surgeon B. Stone.

1048. The upper third of the left femur, fractured below the trochanters, with a moderate effusion of spongy callus,
b. 168. but without union.

Contributed by Dr. Jas. R. Wood.

722. The shaft of the femur, thoroughly shattered in its middle third, with large fragments sheathed in callus, irregu-
b. 169. larly placed.

Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

462. The upper portion of the left femur, obliquely fractured through the trochanters, with a fair deposit of callus, but
b. 170. without union. The hip joint appears to have been involved

Contributed without history by Surgeon A. B. Hasson, U. S. Army.

1944. The upper third of the right femur, fractured obliquely below the trochanters by a conoidal ball. Shortening of
b. 171. nearly four inches has occurred, with very slight union. The extremities are carious.

Private H. F., "G," 55th Ohio, 20: Gettysburg, 2d July; died from exhaustion, 26th September, 1863.

Contributed by Acting Assistant Surgeon E. P. Townsend.

1935. The upper portion of the right femur, fractured just below the trochanters, with profuse deposit of callus with-
b. 172. out union. The history reports "a complete false joint, the head and socket being covered with a dense, smooth and apparently fibrous membrane," but this is not seen in the specimen.

Private S. M., "A," 63d New York, 26: Gettysburg, 2d July; died from exhaustion, 8th October, 1863.

Contributed by Acting Assistant Surgeon E. P. Townsend.

233. The upper half of the right femur, obliquely fractured and comminuted below the trochanters. A considerable
b. 173. deposit of callus, imprisoning the larger fragments and affording partial union, has occurred

Contributed by Surgeon A. Bournonville, U. S. Vols.

27. The upper half of the left femur, shattered just below the trochanters. Partial union at right angles has occurred
b. 174. Callus entangling the fragments has been somewhat copiously thrown out, but the inner surfaces are carious. The shaft, nearly the length of the specimen, is roughened by the action of pus.

Contributed by Assistant Surgeon Warren Webster, U. S. Army.

3881. The right femur, united, with two inches shortening, after fracture by a conoidal ball in the upper third. A large
b. 175. fragment is bound fast, a small sequestrum is nearly loose, the ends are well rounded, and the lower extremity is diseased as far as the condyles.

Private M. S., "K," 6th Louisiana, (Rebel,) 30: Antietam, 17th September, 1862; died from exhaustion, Frederick, 22d April, 1863.

Contributed by Acting Assistant Surgeon G. M. Paullin.

See 3882, **XIII.** A. B. b. 37.

681. A portion of the right femur, obliquely fractured with comminution in the upper third. There is necrosis of
b. 176. the extremities of the fracture and some deposit of callus, but no attempt at union.

Contributed by Surgeon I. Moses, U. S. Vols.

2577. The upper half of the right femur, fractured obliquely at the junction of the upper thirds. A considerable
b. 177. deposit of callus from the extremities united the fragments by columnar attachments without the direct apposition of the ends. Union, as seen in the specimen, with one and three-fourths inches shortening, permitting the patient to be moved in a wheeled chair, occurred after ten weeks and two days' treatment.

Private J. L., "H," 26th Pennsylvania: Gettysburg, 2d July; admitted hospital, Philadelphia, 14th July; died from hæmorrhage following a sloughing ulcer after he appeared out of danger, 10th October, 1863.

Contributed by Acting Assistant Surgeon W. D. Hall.

1197. A portion of the right femur, fractured at the junction of the upper thirds "by a cannon ball" (probably
b. 178. grape shot). Very fair union has occurred. Subject had suffered from scrofula in childhood.

Private B. F. R., "I," 22d North Carolina, (Rebel,) 27: Fair Oaks, 1st June; admitted hospital, Philadelphia, 8th June, 1862; died, tuberculous, 13th January, 1863.

Contributed by Acting Assistant Surgeon C. B. King.

2233. The middle portion of the shaft of the femur, fractured by gunshot, with the fragments united by callus with
b. 179. angular deformity.

Contributed by Surgeon A. Nash, 9th Michigan Cavalry.

3885. The upper portion of the left femur, fractured, with much loss of substance, below the trochanters, and united by
b. 180. an extensive deposit of callus, with the neck at nearly right angles to the shaft, shortened two and a half inches.

Private R. D., "C," 4th Texas, (Rebel,) 20: Antietam, 17th September; removed to Winchester, 24th October, 1862; admitted hospital, Frederick, 23d January; died from exhaustion, 2d February, 1863.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

1161. A portion of the shaft of the left femur, fractured in the upper third and partially
b. 181. united by columns and arches of callus. A portion of the ball is found in the middle of the callus. Subject walked on crutches for the last three months. *See figure* 95.

Private E. H., "B," 20th Indiana: Second Bull Run, 29th August, 1862; died from cerebral meningitis, Washington, 25th May, 1863

Contributed by Assistant Surgeon C. C. Byrne, U. S. Army.

See 4627, **XXVI.** A. 1, 36.

See class **XXVII.** B. B. d.

FIG. 95. Left femur, united by arches after fracture in middle third. *Spec.* 1161.

2848. The right femur, fractured in its upper third by a conoidal ball. Union occurred by
b. 182. arches of callus binding the fragments. A portion of the missile is embedded in the bone, the extremities of which are carious.

Sergeant J. W. S., "D," 1st Maine, 24: Cedar Creek, Va., 19th October; admitted hospital, Baltimore, 24th October, 1864; died from diphtheria, 25th May, 1865.

Contributed by Brevet Major D. C. Peters, Assistant Surgeon, U. S. Army.

See class **XXIII.** B. B. d.

3357. A portion of the right femur, fractured by a conoidal ball, with loss of a portion of
b. 183. the shaft in the upper third. The bone is firmly united by two columns of fragments and callus.

Contributed by Acting Assistant Surgeon G. P. Hachenburg.

4382. The right femur, fractured in the upper third by a conoidal ball, eleven months after the injury. There is a
b. 184. certain degree of union by foliaceous callus, but it was insufficient for support.

Second Lieutenant G. A. C., "A," 7th Wisconsin, 24: Ream's Station, 25th August; admitted hospital, Washington, 28th August, 1864; femur united, but sinuses extended to necrosed bone, which it was forbidden by the patient to remove, 1st April; necrosed bone and fragments of lead removed by Surgeon D. W. Bliss, U. S. Vols., 24th June; died exhausted, 31st July, 1865.

Contributed by Acting Assistant Surgeon C. B. Porter.

1850. The upper third of the right femur, fractured through the great trochanter. Extensive spongy deposit surrounds
b. 185. the wound in the bone, the interior of which is carious.

Corporal J. R., "C," 27th Indiana, 22: Chancellorsville, 3d May: admitted hospital, Washington, 14th June; died from exhaustion, 25th October, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

3841. The greater portion of the left femur. The shaft has been fractured by gunshot in the upper third, and the
b. 186. extremities remaining about four inches apart have been firmly united by callus, which has bound down the detached fragments. Owing to the want of apparatus there is lateral deformity of about 45°.

Private M. D P., "H," 26th Alabama, (Rebel,) 22: Antietam, 17th September, 1862; admitted hospital, Frederick, 2d January; died from exhaustion, 16th March, 1863.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

3894. The upper half of the right femur, shattered at the junction of the upper thirds and firmly united by columns of
b. 187. callus involving the fragments. The internal surfaces are carious.

Private R. R., "G," 27th Georgia (Rebel).

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

1042. The upper half of the right femur, fractured by gunshot immediately below the
b. 188. trochanters. Firm union, with four inches shortening and a very large deposit of callus, occurred. Four months after the injury the consolidation was complete, the external wounds, except one small sinus, were closed, and the subject walked a little on crutches. *See figure* 96.

Private S. L. W., "K," 6th Pennsylvania Reserves: Antietam, 17th September, 1862; died from phthisis, Smoketown, Md., 9th March, 1863.

Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

See 4627, **XXVI.** A. 1, 38.

FIG. 96. Consolidated gunshot fracture of upper third right femur. *Spec.* 1042.

3394. The upper portion of the left femur, badly comminuted below the trochanters and
b. 189. united, shortened and mal-adapted, with a profuse deposit of callus. A number of large fragments, which have preserved their life, serve, covered with callus, to connect the broken shaft. But the central cavity is carious, and from its suppuration appears to have proceeded fatal exhaustion.

Contributed by Assistant Surgeon C. C. Byrne, U. S. Army.

See class **XXVII.** B. B. d.

3416. The shaft of the left femur comminuted, with longitudinal fissuring of the middle third. A large section of the
b. 190. bone is lost and the adjacent fragments are necrosed. A local deposit of spongy callus exists at one point.

Private J. A., "B," 181st New York: Cedar Creek, Va., 19th October; secondary hæmorrhage from ulceration of femoral artery, 6th November; died, Baltimore, 8th November, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

798. The upper fourth of the left femur, showing a partially united fracture just below the trochanters. There is short-
b. 191. ening for two inches with lateral displacement. Foliaceous callus has been largely deposited, but the union is not of any strength. The extremities of the shaft are carious, and a few deep-seated necrosed fragments may be seen.

History and contributor unknown.

1045. The lower portion of the left femur, showing a consolidated gunshot fracture at the junction of the lower thirds.
b. 192. There is three inches shortening with antero-posterior deformity. Union has occurred, but the fractured portion is filled with sinuses which lead to a carious condition of the shaft. The specimen is sawn longitudinally to expose the internal structure.

Received without history from Brevet Major George M. McGill, Assistant Surgeon, U. S. Army.

1130. The inferior half of the right femur, perforated, with comminution, in the lowest third. The fractured bones are
b. 193. necrosed in their borders, and on the superior portion there is a very trivial periosteal deposit.

Private P. H., "C," 10th Vermont, 24: Monocacy, 9th July; died from exhaustion, Frederick, 7th August, 1864.

Contributed by Acting Assistant Surgeon A. R. Gray.

For other illustrations, see 1747, **XII.** A. B a. 22; 4386, **XII.** A. B. e. 8; 1473, **XIV.** A. B. c. 17; 3799, **XIV.** A. B. c. 23; 4627, **XXVI.** A. 1, 45, 46, 47, 48, 49, 50; 4628, **XXVI.** A. 2, 67, 68, 69, 71, 72, 73, 76, 77, 83, 84, 89, 90, 91; 4629, **XXVI.** A. 3, 111, 114, 115, 116, 117, 118, 119, 128, 129, 130, 131; 4719, **XXVI.** A. 4, 151, 153, 157, 158, 161; 3140, **XXVII.** B. B. d. 12.

c. Excisions.

2816. The upper third of the left femur, showing an excision of fragments in a comminuted fracture. There is no bony
c. 1. deposit, and the shaft is stripped of periosteum for some distance below the seat of injury.

Private W. J. B., "D," 2d Pennsylvania Heavy Artillery, 18: before Petersburg; operation on the field, 19th June; admitted hospital, Washington, 24th June; died, 8th July, 1864.

Contributed by Acting Assistant Surgeon W. H. Ensign.

See class **XIII.** A. A. c.

11. The right femur, from which fragments have been excised in its lowest third.
c. 2. —— P., company and regiment unknown: removed on 12th day by Acting Assistant Surgeon B. A. Vanderkieft; died of pyæmia in three weeks.

Contributed by Assistant Surgeon J. S. Billings, U. S. Army.

2947. The upper portion of the right femur, showing an excision of fragments for two and a half inches in the upper third.
c. 3. Both excised extremities are necrosed. There is a deposit of some osseous matter on the upper extremity, but on the lower only upon a small portion of the posterior aspect.

Private J. F., "G," 21st Massachusetts, 23: Cold Harbor, 3d June; operation on the field, 4th; admitted hospital, Washington, 7th June; died of exhaustion, 3d August, 1864.

Contributed by Surgeon N. R. Mosely, U. S. Vols.

See class **XIII.** A. a. c.

396. Fragments and a small portion of the shaft of the femur, partly necrosed, excised after a certain amount of callus
c. 4. had been thrown out.

Contributed without history by Surgeon A. B. Hasson, U. S. Army.

1476. Three inches of the upper third of the shaft of the femur, being a part of a portion of that bone excised for fracture
c. 5. involving the trochanters.

Private J. L., "B," 52d North Carolina (Rebel): died on the eighth day after the operation.

Contributed by Surgeon R. W. Pease, U. S. Vols.

3034. Three inches excised from a femur fractured in the upper third.
c. 6. Private H. S., "I," 59th Massachusetts, 16: Wilderness, 6th May; excised by Surgeon R. B. Bontecou, U. S. Vols., Washington, 3d June; died, 5th June, 1864.

Contributed by the operator.

394. Two sections of the shaft of the femur, an inch and a half and three inches in length respectively, and an
c. 7. irregular portion two inches by three in its greater lengths. The smaller section has a ring of necrosis at one extremity, as though it were a stump. The larger is obliquely fractured toward one end, with thickened periosteum, and bears the mark of the saw an inch from the extremity. The irregular portion is composed of fragments united by new bone. The specimen is from the upper part of the femur, and the long section is probably the one that was excised.

Corporal J. W., "F," 12th U. S. Infantry: admitted hospital, Baltimore 21st July; excised, 26th July; died, 14th August, 1862.

Contributed by Assistant Surgeon Roberts Bartholow, U. S. Army.

1328. Three and one-fourth inches of the upper third of the left femur, excised for fracture from a conoidal ball.
c. 8. Private J. W. H., "I," 92d New York: wounded, 14th December; excised by Surgeon C. A. Cowgill, U. S. Vols., Newbern, N. C., 29th December, 1862; died, 22d January, 1863.

Contributed by the operator.

2333. Two and a half inches of the shaft, and fragments amounting to two inches more, excised from the middle of the
c. 9. right femur for gunshot.

Private H. A. M., "A," 1st Maine Heavy Artillery, 20: Spottsylvania, 19th May; admitted hospital, Washington, 22d; excised by Surgeon N. R. Mosely, U. S. Vols., 23d May; transferred to Portland, Me., 28th June, 1864; discharged the service, 6th June, 1865.

Contributed by the operator.

199. Four and a half inches of the shaft of the femur, comminuted and apparently excised.
c. 10. Contributed by Surgeon D. W. Bliss, U. S. Vols.

2159. Four and three-fourths inches of the shaft of the femur, excised for a transverse oblique fracture.
c. 11. Supposed to be the case of Second Lieutenant W. A. T., "F," 105th Illinois, 25: right femur fractured by shell, Resaca, Ga., 15th May; about four inches of the middle third of the shaft excised at Field Hospital by Surgeon A. W. Reagan, 70th Indiana; admitted hospital, Nashville, Tenn., 28th June; granted leave of absence, 21st July, 1864, and ultimately recovered.

Contributed by Surgeon Geo. W. McMillin, 5th East Tennessee.

1539. Five inches of the shaft of the right femur, excised just below the neck and through the great trochanter for
c. 12. perforation at the level of the lesser trochanter. The bone is fractured obliquely with some comminution.

First Sergeant M. S., 76th Pennsylvania: Chancellorsville, 3d May; excised by Surgeon R. Thomain, 29th New York, in the field, 16th May, 1863. Recovered.

Contributed by the operator.

2410. Six and a half inches of the shaft of the left femur, said to have been excised for a gunshot fracture in the
c. 13. lower part.

Contributed by Surgeon J. H. Brinton, U. S. Vols.

1374. Seven and a half inches of the shaft of the left femur, excised for a comminuted fracture The fracture does not
c. 14. reach the upper line of section by two inches.
Contributed by Drs. Cantwell and Kibbee.

d. Amputated Fractures.

844. The bones of the left knee. The femur was contused on the anterior face of the lowest fourth, where a scale of
d. 1. lead has remained. The bone, superficially necrosed for the diameter of an inch, is roughened on the inner aspect by periostitis. Amputated in the lowest third for resulting ulceration of the knee.
Probably Private J. M., "E," 8th Pennsylvania Reserves: probably Fredericksburg, 13th December; admitted hospital, Washington, 23d; amputated, 24th December, 1862; died, 19th January, 1863.
Contributed by Surgeon Henry Bryant, U. S. Vols.
See classes **XIII.** A. B. a.; **XIV.** A. B. c.; **XXVII.** B. B. d.

32. The lowest fourth of the right femur, perforated antero-posteriorly just above the inner condyles by a carbine
d. 2. ball.
—— —— (Rebel): Williamsburg, 5th May; walked some distance after being shot; amputated for inflammation of the knee by Assistant Surgeon J. S. Billings, U. S Army, Washington, 30th May, 1862. The protruding end of the femur, after sloughing, was removed.
Contributed by the operator.
See classes **XIII.** A. B. a.; **XIV.** A. B. c.

1991. The lowest third of the right femur, amputated on account of inflammation of the knee joint following a partial
d. 3. fracture of the shaft at its junction with the internal condyle. The ball has cut a comparatively clean passage from before backward.
Private F. J., "A," 19th New York, 45: admitted hospital, Washington, 28th August; amputated by Surgeon N. R Mosely, U. S. Vols., 30th August, 1864; died of exhaustion and diarrhœa, 23d January, 1865.
Contributed by Acting Assistant Surgeon W. H. Combs.
See classes **XIII.** A. B. a.: **XIV.** A. B. c.

2437. The lowest third of the left femur, amputated for contusion by a conoidal ball above the inner condyle, where it
d. 4. is locally carious. The specimen is sawn open longitudinally, exhibiting diseased action to the centre of the bone.
Private B. A. E., "B," 6th Michigan Cavalry: wounded, 28th May; amputated, Washington, 6th June; died of pyæmia, 11th June, 1864.
Contributed by Surgeon John A. Lidell, U. S. Vols.
See class **XIII.** A. B. a.

164. The lowest third of the right femur, amputated for penetration by a conoidal ball which lodged in the anterior
d. 5. portion of the base of the shaft. A longitudinal fracture through the shaft extends upward with other longitudinal fissuring.
Contributed by Assistant Surgeon C. A. McCall, U. S. Army.
See class **XXVII.** B. B. d.

406. The lowest third of the left femur, amputated for a partial fracture by a conoidal ball which is embedded just
d. 6. above the patella. A fissure extends upward three and a half inches, and another and independent one occupies the outer surface.
Private W. S. W., Morgan's Cavalry (Rebel): wounded near Winchester; amputated by Dr. V. B. Thornton; and sufficiently recovered to be transferred to South Carolina.
Contributed by Acting Assistant Surgeon F. Schafhirt.
See classes **XIII.** A. B. a.; **XXVII.** B. B. d.

4041. The lowest third of the left femur, perforated and comminuted by a musket ball, probably conoidal, at the base of
d. 7. the shaft.
Private N. W., "C," 185th New York: South Side R. R., 29th March; admitted hospital and amputated by Surgeon D. W. Bliss, U. S. Vols., Washington, 2d April; died from effects of fracture of skull, which was not discovered at the time of amputation, 18th April, 1865.
Contributed by the operator.
See class **I.** A. B. d.

4160. The lowest third of the right femur, shattered by a conoidal ball and amputated.
d. 8. Private D. A., "D," 31st Maine, 20: Petersburg, 17th March; amputated by Surgeon W. O. McDonald, U. S. Vols., 4th April; died from pyæmia, 11th April, 1865.
Contributed by the operator.

31. The lowest fourth of the left femur, partially fractured by two musket balls just above the condyles. The
d. 9. laminated and part of the cancellar structures on the anterior surface of the shaft are torn away, and an oblique fracture extends three inches up the posterior aspect.

Private N. B. B., "K," 19th Mississippi (Rebel): Williamsburg, 5th May; amputated by Assistant Surgeon J. S. Billings, U. S. Army, Washington, 19th; died of pyæmia, 26th May, 1862.

Contributed by the operator.

369. The lowest third of the left femur, with two wounds in the base of the shaft. The outer and anterior angle just
d. 10. above the articular surface is broken, and from it an oblique fracture extends three and a half inches upward toward the inner border of the shaft. The fractured region is surrounded by periosteal thickening, while the broken edges are necrosed. On the posterior surface is a conoidal cavity in the cancellated substance, with an external base of one inch in diameter, as though caused by the lodgement of a bullet and subsequent efforts at removal. The periosteal disturbance has been considerable. These two wounds appear to be one perforation, but in fact they do not communicate.

Private M. H., 23d North Carolina (Rebel): Antietam, 17th September; amputated by Surgeon H. S. Hewit, U. S. Vols, Frederick, 8th October; died, 18th October, 1862.

Contributed by the operator.

3315. The lowest third of the right femur, fractured just above the condyles by a musket ball passing from without
d. 11. transversely through the shaft, splintering it and lodging in the left knee.

M. R., a colored woman: wounded at Fort Pillow, Tenn., 12th April; amputated at Mound City, Ill., by Surgeon H. Wardner, U. S. Vols., 21st April; died, 26th April, 1864, rather from the effects of exposure after being wounded than from the wound itself.

Contributed by the operator.

4069. The lowest third of the right femur, with a conoidal ball, which has comminuted the bone with longitudinal
d. 12. fracture, lodged in the anterior surface.

Private J. D., "B," 198th Pennsylvania, 22: South Side R. R., 31st March; admitted hospital, Washington, 4th April; amputated by Surgeon N. R. Mosely, U. S. Vols., 7th; died from exhaustion, 10th April, 1865.

Contributed by the operator.

See class **XXVII.** B. B. d.

4070. The lowest third of the left femur, amputated for a transverse fracture crossed anteriorly by a longitudinal one,
d. 13. with some comminution, from a conoidal ball.

Corporal H. M., "K," 7th Maryland, 24: South Side R. R., 31st March; admitted hospital, Washington, 4th April; amputated by Surgeon N. R. Mosely, U. S. Vols, 6th; died, 11th April, 1865.

Contributed by the operator.

1171. The lower portion of the left femur, obliquely fractured by a conoidal ball which struck the anterior surface of
d. 14. the tibia in its lowest third, shattered it and passed through the inter-osseous space, wounding the popliteal vessels, penetrated the femur on its posterior surface an inch and a half above the articulation and lodged in the medullary canal. The leg was flexed at the instant of injury.

Private C. D., 148th Pennsylvania: Chancellorsville, 3d May; amputated in the field by Surgeon C. S. Wood, 66th New York, 17th; died, 19th May, 1863.

Contributed by the operator.

See class **XV.** A. B. d.

1366. The lower half of the right femur. A conoidal ball, striking the lowest third, has caused a longitudinal fracture of
d. 15. five inches, and from the anterior surface three inches of fragments are wanting. The missile, partly flattened, is attached.

Received after Gettysburg.

See class **XXVII.** B. B. d.

186. The lowest third of the left femur, partially fractured by a bullet, apparently spherical, which lodged in the shaft
d. 16. just above the outer condyle. The fracture is oblique, extending upward as if in indication of the direction of the missile. A fragment of clothing is yet in the wound.

Private J. N., "A," 155th Pennsylvania, 22: Petersburg, 25th March; admitted hospital, Washington, 2d April; amputated in the middle third, 7th; died, 25th April, 1865.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

See classes **XIII.** A. B. a; **XXVII.** B′. B′.

3757. The lowest third of the left femur, occupied by an oblique fracture without comminution, said to have been
d. 17. caused by a conoidal ball. The shaft is superficially necrosed as far as the articulation.

Private J. J., "C," 57th Indiana, 27: Franklin, Tenn., 27th December; amputated in the middle third by Surgeon M. Gay, U. S. Vols., 28th December, 1864; died from exhaustion, 1st January, 1865.

Contributed by Acting Assistant Surgeon H. C. May.

3345. The lower portion of the left femur. A musket ball struck the outer angle of the shaft two inches above the
d. 18. patella, slightly chipping the laminated structure and causing a complete oblique fracture which extends upward more than six inches. The fracture is bordered by superficial necrosis.

Private J. C., "H," 155th Pennsylvania: Petersburg, 26th June; admitted hospital, Alexandria, 4th July; amputated for secondary hæmorrhage, 11th July, 1864. Death occurred in two hours.

Contributed by Surgeon Edwin Bentley, U. S. Vols.

30. The lower half of the right femur, with two extensive longitudinal fissures downward from the point of impact
d. 19. of a bullet on the anterior face at the junction of the lower thirds. A small triangular fragment was chipped out by the missile. Another shot passed through the head of the tibia.

—— H. (Rebel): Williamsburg, 5th May; amputated by Assistant Surgeon J. S. Billings, U. S. Army, 19th May, 1862. Recovered.

Contributed by the operator.

See classes **XIII.** A. B. a.; **XV.** A. B. d.

1427. The lower portion of the left femur, after amputation in the middle third for an oblique fracture in the lowest
d. 20. third by a conoidal ball. There is no comminution, except by the loss of a small fragment at the point of impact. The fracture is downward, but necrosis may be traced on the upper fragment for more than two inches.

Captain G. S. D., "F," 2d New York Heavy Artillery, 26: Petersburg, 16th June; admitted hospital, Washington, 22d June; amputated by Dr. Garcelon, date unknown; died, 6th December, 1864.

Contributor and further history unknown.

See 2828, **XXV.** A. B. b. 160.

See class **XVII.** B. B. d.

1064. The lower portion of the left femur, amputated in the middle third for perforation with oblique fracture of the
d. 21. lowest fourth.

Lieutenant F. M. W., "D," 132d Pennsylvania: admitted hospital, Washington, 1st May; died, 2d June, 1863.

Contributed by Assistant Surgeon C. C. Byrne, U. S. Army.

2490. The lower half of the right femur, with a partial fracture near the base of the shaft, involving the destruction of
d. 22. much of the laminated portion of the bone, and an extensive longitudinal fissure upward.

Corporal S. H. H., "H," 36th Wisconsin, 36: North Anna, Va., 26th May; admitted hospital, Washington, 29th May; amputated by Acting Assistant Surgeon W. H. Dean, 9th June; died from exhaustion, 16th June, 1864.

Contributed by the operator.

See classes **XIII.** A. B. a.; **XXVII.** B. B. d.

52. The lower half of the left femur. The lowest third was perforated in its upper portion by a conoidal ball which
d. 23. obliquely fractured and splintered the shaft.

Private L. S., "D," 29th Ohio: Cedar Mountain, 9th August; admitted hospital, Alexandria, 12th; amputated by Acting Assistant Surgeon J. B. Bellangee, 15th August; died, 4th September, 1862.

Contributed by the operator.

2388. The lower half of the right femur, amputated for perforation by a conoidal ball in the lowest third, with much
d. 24. longitudinal splintering.

Private A. J. D., "M," 1st Maine Heavy Artillery, 21: Wilderness, 19th May; admitted hospital, Washington, 22d; amputated by Acting Assistant Surgeon W. H. Ensign, 31st May; died, 1st June, 1864.

Contributed by Surgeon N. R. Mosely, U. S. Vols.

4163. The lower half of the left femur, comminuted in the lowest third. A fragment of a conoidal ball which entered
d. 25. the anterior aspect has lodged.

Private P. E., "B," 18th Georgia (Rebel): Burksville, Va., 6th April; amputated in the middle third by Assistant Surgeon W. Carroll, U. S. Vols., 16th April, 1865.

Contributed by the operator.

See class **XXVII.** B. B. d.

365. The lower half of the left femur, severely contused at the posterior base of the shaft of the right femur. The
d. 26. remains of periosteal inflammation extend upward several inches.

H. H., 12th North Carolina (Rebel): Antietam, 17th September; amputated in the middle third by Surgeon H. S. Hewit, U. S. Vols., Frederick, 7th October; died, 9th October, 1862.

Contributed by the operator.

See class **XIII.** A. B. a.

1501. The lower portion of the left femur, amputated in the middle for shattering of the lowest third.
d. 27. Private J. B., "I," 69th Pennsylvania: Cold Harbor, 3d June, 1864. Secondarily amputated with unknown result.
Contributed by Surgeon F. F. Burmeister, 69th Pennsylvania.

4164. The lower half of the left femur, very much comminuted by a conoidal ball in the middle third. The lines of
d. 28. fracture are exceedingly irregular.
Private G. W. B., "G," 12th Alabama, (Rebel,) 18: Burksville, Va., 6th April; amputated by Assistant Surgeon W. Carroll, U. S. Vols., 17th April, 1865.
Contributed by the operator.

2824. The lower half of the left femur. The shaft, struck on the inner aspect by a conoidal ball, is badly shattered.
d. 29. Private S. R. "F," 1st Massachusetts Heavy Artillery, 39: Cold Harbor, 31st May; admitted hospital, Washington, 4th June; amputated in the upper third by Assistant Surgeon Alex. Ingram, U. S. Army, 5th; died from exhaustion, 12th June, 1864.
Contributed by the operator.

3831. The lower half of the right femur, obliquely fractured, with comminution and longitudinal fissuring, by a conoidal
d. 30. ball in the lowest third. At the time of the operation a sinus communicated with the knee, which was ulcerated. The superior borders of the fracture were necrosed, above which periosteal inflammation occurred. The condyles are eroded.
Private G. M., "H," 4th Vermont: Halltown, Va.; admitted hospital, Frederick, 29th August; amputated in middle third and died, 15th September, 1864.
Contributed by Acting Assistant Surgeon J. C. Shimer.
See class **XIV.** A. B. C.

184. The right femur, amputated in the middle third after comminution of the lowest fourth of the shaft from perfora-
d. 31. tion by a conoidal ball.
Private P. H., "K," 48th Pennsylvania: Second Bull Run, 29th August; amputated, 12th September; died, Washington, 25th October, 1862.
Contributed by Surgeon O. A. Judson, U. S. Vols.

3548. The right femur, amputated in the upper part of the middle third for a comminuted fracture from a minie ball at
d. 32. the junction of the lower thirds.
Private C. C., "B," 120th New York, 22: Cold Harbor, 31st May; admitted hospital, Washington, 4th June; amputated by Assistant Surgeon W. Thomson, U. S. Army, 5th; died from pyæmia with osteo-myelitis, 12th June, 1864.
Contributed by the operator.

2764. The lower half of the right femur, shattered, with loss of fragments, at the junction of the lower thirds.
d. 33. Sergeant G. W. C., 1st Maine Heavy Artillery, 42: Petersburg, 18th June; admitted hospital, Washington, 2d July; amputated by Surgeon A. F. Sheldon, U. S. Vols., 3d; died from exhaustion, 10th July, 1864.
Contributed by the operator.

3058. The lower half of the right femur, perforated, with longitudinal fracture, probably by a conoidal ball. Necrosis has
d. 34. established a line of demarcation near the borders of the fragments, and a slight deposit of callus appears on the healthy portions.
Private J. McC., "B," 140th Pennsylvania, 17: Wilderness, 12th May; admitted hospital, Washington, 16th May; amputated by Surgeon R. B. Bontecou, U. S. Vols, and died, 8th June, 1864.
Contributed by the operator.

2033. The lower half of the right femur, comminuted by a conoidal ball in the lowest third. The parts about the fracture
d. 35. are dead and stripped, but the upper half of the specimen is covered with an involucrum of foliaceous callus tolerably dense posteriorly. There is also some periosteal deposit above the condyles.
Private E. G., "K," 119th Pennsylvania: Rappahannock Station, 7th November; admitted hospital, Washington, 9th November; condition of limb grew worse and severe secondary hæmorrhage occurred, 28th December, 1863; amputated in the middle third, 21st January; furloughed, 8th April, 1864.
Contributed by Surgeon D. W. Bliss, U. S. Vols.

436. The lower half of the left femur, fractured in the lowest third by a conoidal ball. The extremities are necrosed,
d. 36. there is a moderate effusion of callus on the upper fragment, and an imperfect coaptation of the parts without union occurred.
Private J. R., "B," 42d New York: Antietam, 17th September; treated with plaster of Paris, 19th September—16th October; amputated in middle third by Acting Assistant Surgeon Webb, Frederick, 27th; femoral ligated for secondary hæmorrhage and died, 30th October, 1862.
Contributed by the operator.

1565. The lower half of the right femur, shattered at the junction of the lower thirds. The specimen shows union
d. 37. by means of bridges of new bone embracing the fragments, with lateral and antero-posterior displacement. Pieces of dead bone are yet entangled, and both extremities of the fracture are carious.

Sergeant B. F. F., "H," 2d New York Heavy Artillery, 22: admitted hospital, Baltimore, from another hospital, 31st July; amputated at the junction of the upper thirds and died, 2d August, 1865.

Contributed by Surgeon Thomas Sim, U. S. Vols.

792. The lower half of the left femur, fractured in the lowest third by a conoidal ball, with slight union, some deformity
d. 38. and one inch shortening. The fractured extremities are necrosed and are spanned at points by new bone.

Major G. F. L., 32d New York: Crampton's Gap, Md., 14th September; thigh amputated in the middle third for secondary hæmorrhage by Surgeon Lewis W. Oakley, 2d New Jersey, and death occurred, Frederick, 9th November, 1862.

Contributed by Assistant Surgeon H. A. Du Bois, U. S. Army.

2167. The lower half of the left femur, obliquely fractured in the middle third by a conoidal ball, which entered near
d. 39. the patella, avoiding the synovial pouches, and lodged in the limb five or six inches above the knee. The specimen was sawn longitudinally to exhibit osteo-myelitis, and shows a partially consolidated fracture, with two inches shortening, and a fragment of ball lodged in the medullary canal.

Private T. B., "C," 57th North Carolina, (Rebel,) 30: Rappahannock Station, Va., 7th November; admitted hospital, Washington, 9th November, 1863; femur firmly united, with two inches shortening, and good general health, 1st January; tumefaction of thigh commenced, 1st February; cicatrix incised, evacuating a little pus, 2d March; amputation demanded on the subsidence of inflammation, 20th; secondary hæmorrhage, 24th; died, 27th March, 1864. At the autopsy much serous infiltration was found; the soft parts were dissected for eight inches about the wound; the medulla of the femur above the fracture was bright red, as described by Virchow in osteo-myelitis.

Contributed by Surgeon J. A. Lidell, U. S. Vols.

See class **XXVII.** B. B. d.

83. The lower half of the left femur, fractured by the transverse passage of a musket ball on the anterior surface
d. 40. above the condyles. The extremity of the upper fragment is necrosed, and its line of demarcation is distinct, above which a little callus has been deposited.

Private J. S., "I," 75th Ohio: Second Bull Run, 30th August; admitted hospital, Alexandria, 7th September; amputated in the middle third, 25th September, 1862. Recovered.

Contributed by Surgeon C. Page, U. S. Army.

2803. The lowest third of the left femur, occupied by an oblique gunshot fracture extending through it. The parts
d. 41. are not in apposition, but bands of callus firmly unite them at intervals.

Early history of this subject, wounded at Chickamauga, 20th September, 1863, unknown. Received in hospital, Murfreesboro', in a very low condition. Amputated in the middle third as the only chance for life. Died.

Contributed by Surgeon I. Moses, U. S. Vols.

2290. The lower half of the left femur, obliquely fractured in the lowest third by a conoidal ball. Partial union, with
d. 42. lateral displacement and four inches shortening, occurred.

Contributor and history unknown.

3836. The lower half of the shaft of the left femur, badly comminuted by a conoidal ball.
d. 43. Private S. P., "G," 31st Georgia, (Rebel,) 41: Monocacy Junction, 9th July; amputated in the middle third, August; died, Frederick 26th August, 1864.

Contributed by Acting Assistant Surgeon J. H. Coover.

3855. The lower half of the left femur, fractured at the junction of the lower thirds and firmly united, with two and a
d. 44. half inches shortening and antero-posterior displacement. The limb was amputated in the middle third in consequence of disorganization of the knee following erysipelas. The specimen displays the structure of the epiphysis.

Private C. F. R., "F," 124th Pennsylvania, 29: Antietam, 17th September, 1862; admitted hospital, having been previously treated without apparatus, with two and a half inches shortening, Frederick, 27th January; attacked with erysipelas; knee joint destroyed; amputated in the middle third by Assistant Surgeon R. F. Weir, U. S. Army, 23d February; died from exhaustion following another attack of erysipelas, 21st March, 1863.

Contributed by the operator.

See 3903, **XIII.** A. B. f. 58.

See classes **XIV.** A. B. c.; **XXIII.** A. A.

1918. The lower portion of the right femur, fractured in the lowest third, but firmly united with much deformity. On
d. 45. two occasions portions of protruding necrosed bone were removed, and the thigh was finally amputated on account of utter uselessness of the limb.

Captain K., —— Louisiana, (Rebel,) 25: Stone River, 1st January; amputated in middle third by Surgeon A. H. Thurston, U. S. Vols., Nashville, 15th September, 1863. Recovered.

Contributed by Acting Assistant Surgeon H. M. Lilly.

1499. The middle third of the shaft of the left femur, comminuted by a conoidal ball which rests, flattened, against it.
d. 46. Sufficient traces of periosteal disturbance remain to show the amputation to have been secondary.

Private M. B., "G," 155th New York, 40: Cold Harbor, 3d June; amputated, Second Corps Hospital; died, 16th June, 1864.

Contributed by Surgeon F. F. Burmeister, 69th Pennsylvania.

See class **XXVII.** B. B. d.

863. Five inches of the shaft of the left femur, showing local necrosis after contusion by a conoidal ball in the upper
d. 47. third. A moderate deposit of callus has occurred adjacent to the seat of injury. The specimen is an interesting illustration of serious injury without complete fracture.

Private R. L. D., "B," 24th North Carolina (Rebel): Antietam, 17th September; admitted hospital, Chester, Penna., 2d October; amputated and died, 6th November, 1862.

Contributed by Acting Assistant Surgeon John Ashurst, jr.

See class **XXIII.** A. B. a.

2371. The two lower thirds of the right femur, extensively comminuted in the lowest fourth, with marks of extensive
d. 48. periosteal inflammation. Amputation occurred four inches above the extreme point of fracture.

Private H. E. S., "E," 80th New York, 17: Wilderness, 12th May; admitted hospital, Washington, 25th; amputated for secondary hæmorrhage, 29th May; died, 2d June, 1864.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

2617. The two lower thirds of the right femur, obliquely fractured, with splintering at their junction, by a conoidal ball.
d. 49. Private T. M. P., "B," 1st Maine Heavy Artillery, 16: admitted hospital, Washington, 22d May; amputated in the upper third by Acting Assistant Surgeon W. C. Mulford, 26th May; died of exhaustion, 31st May, 1864.

Contributed by the operator.

1543. The shaft of the femur, successfully amputated in the upper third for a double oblique fracture of the central
d. 50. portion.

Contributed by Surgeon Robert Thomain, 29th New York.

4067. The greater portion of the shaft of the right femur, fractured in the middle third, with extensive longitudinal
d. 51. fissures, by a conoidal ball which is attached, flattened.

Private H. D., "I," 198th Pennsylvania, 20: admitted hospital, Washington, 4th April; amputated in the upper third by Surgeon N. R. Mosely, U. S. Vols.; died from exhaustion, 17th April, 1865.

Contributed by the operator.

See class **XXVII.** B. B. d.

1407. The greater portion of the shaft of the left femur, fractured, with much comminution, by the transverse passage of
d. 52. a bullet in the middle third.

Private R. G., "B," 23d Pennsylvania: Cold Harbor, 1st June; amputated at the junction of the upper thirds by Assistant Surgeon B. Stone, U. S. Vols., Sixth Corps Hospital, 9th; died, 13th June, 1864.

Contributed by the operator.

3547. The central portion of the shaft of the left femur, amputated in the upper third for a stellate comminuted fracture
d. 53. from a conoidal ball.

Private B. D., "D," 100th Pennsylvania, 18: wounded, 30th May; admitted hospital, Washington, 4th June; amputated by Assistant Surgeon W. Thomson, U. S. Army, 5th; died without having rallied, 7th June, 1864.

Contributed by the operator.

75. The shaft of the right femur, comminuted in the middle third, with lines of separation for the necrosed fragments
d. 54. well marked.

Private S. McN., "C," 19th Indiana: Second Bull Run, 30th August; amputated in upper third by Acting Assistant Surgeon B. F. Bowles, Georgetown, 22d; died, 25th September, 1862.

Contributed by the operator.

2699. The greater portion of the shaft of the right femur, obliquely fractured, with some comminution, at the junction of
d. 55. the upper thirds. One inch of necrosed bone, partially separated, borders the fracture in the upper fragment. Spiculæ have been removed from the lower portion, the upper border of which also is dead.

Private W. J. B., "D," 2d Pennsylvania Heavy Artillery, 18: Petersburg, 19th June; fragments removed on the field; admitted hospital, Washington, 24th June; died, 8th July, 1864.

Contributed by Surgeon N. R. Mosely, U. S. Vols.

379. A portion of the shaft of the left femur, badly comminuted in the upper third by a conoidal ball.
d. 56. Sergeant C. W., "I," 15th Massachusetts: Antietam, 17th September; gangrene appeared, 25th September; and on that account the thigh was amputated in the upper third, and death followed, Sharpsburg, 2d October, 1862.

Contributed by Surgeon A. Dougherty, U. S. Vols.

See class **XXIII.** A. B.

3396. The shaft of the left femur, amputated at the upper third for oblique fracture by a conoidal ball piercing the centre.
d. 57. J. S., "I," 3d Wisconsin, 21: Dallas, Ga., 25th May; amputated by Assistant Surgeon C. C. Byrne, U. S. Army; Chattanooga, 5th June; died, 22d July, 1864.
Contributed by the operator.

3854. The upper half of the right femur, in two sections. Fractured at the junction of the upper third by a conoidal
d. 58. ball, a few fragments were excised, and, ultimately, amputation was performed at the seat of injury. The lines of demarcation between the sound and healthy bone are well marked, and beyond them a trivial quantity of callus has been deposited.
Corporal J. W. S., "D," 6th Michigan Cavalry, 27: Boonsboro', Md., 8th July; portion of fractured ends removed the same day; admitted hospital, with one and three-fourth inches shortening, Frederick, 21st July; moderate secondary hæmorrhage from sciatic artery, 26th, 28th, 29th July; amputated at point of wound and died, without rallying, 29th July, 1863.
Contributed by Acting Assistant Surgeon J. H. Bartholf.
See class **XIII.** A. B. e.

1679. The two lower thirds of the right femur, amputated after an extensively comminuted fracture near the centre from
d. 59. a conoidal ball.
Private C. H., "A," 1st U. S. Cavalry, 24: Culpeper, Va., 1st August; admitted hospital, Washington, 2d August; amputated for secondary hæmorrhage and death occurred, 8th October, 1863.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.

2056. The three lower fourths of the right femur, shattered by perforation by a conoidal ball six inches above the knee.
d. 60. Superficial necrosis surrounds the fragments. Amputation was performed three and a half inches above the highest line of fracture.
Private J. C. C., "H," 22d North Carolina, (Rebel,) 23: Gettysburg, 3d July; amputated for secondary hæmorrhage, 19th; died at Chester, Penna., 22d July, 1863.
Contributed by Acting Assistant Surgeon B. Stone.

541. The greater part of the right femur, whose middle third is extensively comminuted. A bullet has struck the
d. 61. inner aspect midway in the shattered portion. Amputation appears to have been performed in the second week.
Contributed by Surgeon J. P. Prince, 36th Massachusetts.

187. The two lower thirds of the right femur, after shattering by gunshot in the upper third, adjoining which marks
d. 62. of incipient necrosis are discernable. There is an independent jagged, transverse fracture in the lowest third.
—— ——: Second Bull Run, 29th August; femoral artery ligated, for profuse secondary hæmorrhage, by Acting Assistant Surgeon Banks, Washington, 11th September; amputated below the trochanters and died upon the table, 13th September, 1862.
Contributed by Surgeon O. A. Judson, U. S. Vols.

3875. The shaft of the left femur, shattered in the middle, with a very oblique fracture, by a conoidal pistol ball. The
d. 63. only attempt at repair is a faint line of necrosis bordering the fracture. The amputation was performed one inch above the first line of section.
Private J. K., "F," 1st New York Cavalry, 21: Hagerstown, Md., 7th July; admitted hospital, Frederick, 8th; pneumonia left lung, 16th—27th July; amputated in upper third by Assistant Surgeon R. F. Weir, U. S. Army, 6th August; died from exhaustion, 18th August, 1863.
Contributed by Acting Assistant Surgeon J. H. Bartholf.
See class **XXVII.** B. B. d.

2802. The two lower thirds of the right femur, obliquely fractured in the middle by a musket ball. There is a moderate
d. 64. deposit of callus, but no union. The extremities of the shaft are necrosed.
Private J. S., "K," 9th Ohio: Chickamauga, 19th September; admitted hospital, Murfreesboro', 25th December, 1863; amputated by Assistant Surgeon Sink, 21st Illinois. Recovered.
Contributed by Surgeon I. Moses, U. S. Vols.

3866. The two lower thirds of the shaft of the right femur, fractured in the middle third by gunshot and firmly united
d. 65. by columns of callus. The inner surfaces are carious. The limb was shortened three inches and the foot turned directly outward when admitted to Frederick Hospital.
Private W. G. S., "G," 1st Delaware: Antietam, 17th September, 1862; admitted hospital, debilitated with sinuses extending throughout the thigh, and without history, Frederick, 2d January; amputated in upper third by Assistant Surgeon R. F. Weir, U. S. Army, 5th; died, 10th January, 1863.
Contributed by the operator.

118. The two lower thirds of the right femur, comminuted by a perforating conoidal ball. The line of necrosis is
d. 66. fairly marked on the borders of the fracture, and the fragments of dead bone are held by deposits of callus.

Private G. W. L., "B," 2d New York, 22: Second Bull Run, 29th August; remained on the field until 6th September; amputated by Acting Assistant Surgeon H. C. Heilner, Georgetown, 19th September, 1862.

Contributed by Assistant Surgeon B. A. Clements, U. S. Army.

2229. The two lower thirds of the left femur, longitudinally bisected. The bone was fractured in the middle third by
d. 67. a conoidal bullet. Union of considerable strength has occurred, although, owing to the removal of fragments, the extremities of the bone are not in apposition. Necrosed fragments are entangled in the new bone, and the shaft is diseased to the knee. Examination of the medulla after amputation showed it of a coppery red color.

Private J. P., "H," 119th Pennsylvania, 23: Rappahannock Station, Va., 7th November; admitted hospital, Washington, 9th November, 1863; fragments removed at intervals and doing well until twice attacked with diffusive inflammation, when amputation in upper third was performed, 18th April; died from exhaustion, 26th April, 1864.

Contributed by Surgeon J. A. Lidell, U. S. Vols.

See class **XIII.** A. B. e.

755. The two lower thirds of the right femur, fractured at their junction, with oblique splitting of the posterior surface
d. 68. of the lowest third. A moderate amount of callus has been thrown out, and the extremities of the fragments are in contact without union. The internal portions of both are greatly necrosed.

Private D. J. O'B., "H," 69th New York: Antietam, 17th September; amputated by Surgeon H. S. Hewit, U. S. Vols., Frederick, 5th December; died, 16th December, 1862.

Contributed by the operator.

See 1101, **XIII.** A. B. f. 71.

1409. The lowest third of the left femur. A conoidal ball, split and battered, is impacted at the outer angle of the shaft
d. 69. just above the condyle, whence an oblique fissure extends up the shaft. Amputation was probably performed within the first ten days.

Received after Chancellorsville.

See classes **XIII.** A. B. a.; **XXVII.** B. B. d.

1638. The lowest third of the left femur, perforated by a bullet which entered on the outer surface of the shaft just
d. 70. above the outer condyle and passed inward and backward. An oblique fracture with comminution extends upward three inches, but the epiphysis has escaped injury.

Contributor and history unknown.

1658. The lower portion of the right femur, amputated in the middle third. The shaft was perforated just above the
d. 71. condyles by a ball which entered the anterior surface and passed upward and backward, transversely fracturing the bone with some upward comminution. There are the remains of periosteal inflammation.

Contributor and history unknown.

1076. The amputated portion of the left femur, fractured in the lowest third by two round leaden balls from spherical
d. 72. case; one missile is embedded in the medullary canal and the other, flattened, lodged in the vastus externus muscle. The bone was shattered over a space of two inches and was amputated in the lower part of the middle third.

Brigadier General E. K., U. S. Vols., First Lieutenant 1st U. S. Artillery: Chancellorsville, 3d May; amputated by Surgeon B. Norris, U. S. Army, Washington, 10th; died of pyæmia, 28th May, 1863.

Contributed by the operator.

See 4719, **XXVI.** A. 4, 163.

See class **XXVII.** B. A. c.

For other illustrations, see 536, **XIII.** A. B. e. 29; 2738, **XIII.** C. 5.

e. Other Operations.

445. Thirteen minute fragments of dead bone, said to have been removed by operation after a gunshot fracture of the
e. 1. condyles of the femur.

Private W. B. H., 63d New York: Antietam, 17th September: operated upon, Frederick, 4th October; died, 14th October, 1862.

Contributed by Surgeon H. S. Hewit, U. S. Vols.

3779. Twelve small fragments of bone and a portion of a leaden bullet, removed by operation from the shaft of the
e. 2. right femur. "The fragments of new bone removed were injected with minute portions of metallic lead."

Private W. H. L., "D," 43d New York, 20: Wilderness, 5th May; admitted hospital, Albany, 26th July; removed by Assistant Surgeon J. H. Armsby, U. S. Vols.

Contributed by the operator.

See class **XXVII.** B. B. d.

426. Numerous small fragments, partly necrosed and partly enlarged by callus, removed from the shaft of the femur.
e. 3. Private J. P., "B," 16th New York: probably before Richmond, June; admitted hospital, Baltimore, 21st July; specimen removed 8th August, 1862; discharged the service, 4th April, 1863.
Contributed by Surgeon A. B. Hasson, U. S. Army.

425. Numerous small fragments, removed by operation from the shaft of the right femur.
e. 4. Private W. M., "C," 11th Pennsylvania Reserve Corps, 21: Gaines' Mill, 27th June; a prisoner three weeks; admitted hospital, Baltimore, 21st July; specimen removed by Surgeon A. B. Hasson, U. S. Army, 20th August, 1862.
Contributed by the operator.

643. A triangular fragment of bone, two inches long by half an inch in width, removed from the overlapping extremity
e. 5. of a fractured femur. The extremity of the specimen is necrosed.
Contributed by Surgeon Meredith Clymer, U. S. Vols.

3101. A fragment of bone and battered conoidal ball, removed from the upper third of the left femur.
e. 6. Sergeant H. S. B., "H," 2d Vermont, 37: Wilderness, 5th May; admitted hospital, Washington, 26th May; battered fragment extracted, 19th July; discharged the service with one and a half inches shortening, 5th August, 1864.
Contributed by Acting Assistant Surgeon J. Norris.
See class **XXVII.** B. B. d.

2091. Two fragments of the shaft of the right femur, with battered conoidal ball, removed from the middle third.
e. 7. Private J. F., "H," 7th Missouri, (Rebel,) 27: Helena, Ark., 4th July; removed by Dr. Allen Sterling, Memphis, 13th; died from secondary hæmorrhage, 17th July, 1863.
Contributed by Assistant Surgeon J. C. G. Happersett, U. S. Army.
See class **XXVII.** B. B. d.

824. Fragments representing two and a half inches of the middle third of the femur.
e. 8. Private G. S. E., 15th Alabama, (Rebel,) 35: Antietam, 17th September; admitted hospital, Frederick, 28th September; fragments removed, 3d October; died, 22d October, 1862.
Contributed by Acting Assistant Surgeon W. W. Keen, jr.

4275. Eleven fragments, removed from the middle third of the left femur comminuted by a musket ball.
e. 9. Private M. Y. B., "B," 91st Ohio, 19: near Winchester, Va., 20th July; admitted hospital, Cumberland, 23d; fragments removed, 28th July; died from diphtheria, 16th September, 1864.
Contributed by Surgeon J. D. Lewis, U. S. Vols.

4043. Four fragments, removed from the upper third of the right femur after fracture by a conoidal ball. The longest
e. 10. is three and a half inches.
Sergeant W. B., "H," 69th Pennsylvania, 24: Hatcher's Run, 25th March; admitted hospital, Washington, 30th March; fragments removed, 4th April, 1865.
Contributed by Surgeon D. W. Bliss, U. S. Vols.

67. Fourteen fragments, taken from the upper fourth of the left femur after comminution by a conoidal ball. The
e. 11. largest embraces two square inches.
Private P. W., "I," 185th New York: Petersburg, 29th March; admitted hospital, Washington, 2d April; specimen removed, 9th; died from pyæmia, 25th April, 1865.
Contributed by Assistant Surgeon H. Allen, U. S. Army.

1299. Nine fragments of the right femur, from a comminuted fracture of the upper third.
e. 12. J. P. M., 2d Massachusetts Cavalry, 23: New Iberia, La., 16th April; fragments removed in New Orleans; nearly entirely healed and able to walk on crutches, with three inches shortening, 1st September, 1863.
Contributed by Assistant Surgeon P. S. Conner, U. S. Army.

2130. Eleven fragments, representing two and a half inches of the middle third of the right femur, removed after
e. 13. comminution.
Sergeant S. L. R., "D," 113th Ohio: Chickamauga, 20th September; removed by Surgeon I. Moses, U. S. Vols., Murfreesboro', 17th October; died, 20th October, 1863.
Contributed by the operator.

1279. Six fragments, representing nearly three inches, removed from the middle third of the left femur.
e. 14. Corporal W. B. M., "D," 27th Indiana: Chancellorsville, 3d May; admitted Twelfth Corps Field Hospital, 14th; fragments removed by Surgeon W. H. Twiford, 27th Indiana, 16th May; transferred to Washington, 14th June; died, 19th September, 1863.
Contributed by Assistant Surgeon J. E. Freeman, 13th New Jersey.

1755. Eighteen fragments, removed from a comminuted fracture of the right femur.
e. 15. Contributed by Surgeon I. Moses, U. S. Vols.

1752. Three fragments of the femur, representing three inches of the shaft, from a comminuted fracture.
e. 16. Contributed by Surgeon I. Moses, U. S. Vols.

1753. Twelve fragments of the femur, representing four inches in length, from a comminuted fracture.
e. 17. Contributed, without history, by Surgeon I. Moses, U. S. Vols.

2084. Fragments, representing four inches, removed from a comminuted fracture of the right femur.
e. 18. Private F. L., "F," 33d Iowa, 24: admitted hospital, Memphis, 7th July; died, 27th July, 1863.
Contributed by Acting Assistant Surgeon B. Fearing.

1276. Fragments, representing four inches in length and one-third of the volume of the middle third of the shaft of
e. 19. the right femur, removed after comminution by a conoidal ball, which is attached, flattened.
Private J. C., "C," 27th Indiana: Chancellorsville, 3d May; admitted Twelfth Corps Field Hospital, 14th; fragments removed by Surgeon W. H. Twiford, 27th Indiana, 16th May; removed to Washington, 14th June, 1863; discharged the service, 27th April, 1864.
Contributed by Assistant Surgeon J. A. Freeman, 13th New Jersey.
See class **XXVII.** B. B. d.

1295. Portions of the shaft of the left femur, from whose upper third comminuted fragments have been removed.
e. 20. Private P. G., "A," 1st Louisiana Cavalry, 20: New Iberia, La., 16th April; admitted hospital, New Orleans, 21st April; died from exhaustion, 14th May, 1863.
Contributed by Assistant Surgeon P. S. Conner, U. S. Army.

3504. The greater portion of the left femur, fractured by gunshot in the middle third. The ends of the fractured bone
e. 21. are carious, and there is a moderate deposit of callus near each extremity, but without union. The new bone is at right angles to the shaft, as if from displaced periosteum.
Captain J. J. P., "L," 4th Tennessee Cavalry, (Rebel,) 30: captured, 25th December, 1863; admitted hospital, Nashville, 14th February; necrosed fragments removed, 15th March; died exhausted, 8th April, 1864.
Contributed by Acting Assistant Surgeon G. P. Hachenburg.

4057. Two fragments, being nearly four inches, broken by a conoidal ball and apparently removed from the shaft of the
e. 22. left femur.
Corporal R. M. D., "K," 39th Massachusetts, 24: Gravelly Run, Va., 31st March; died after secondary hæmorrhage, Washington, 12th April, 1865.
Contributed by Acting Assistant Surgeon G. K. Smith.

1281. Fragments, representing nearly four inches of the shaft, removed from the middle third of the right femur.
e. 23. Case of J. L. McM., 27th Indiana; operation, 16th May, 1863. Result unknown.
Contributed by Dr. Kennedy.

2145. Fragments, representing four inches in length and one-half the volume, removed from a comminuted fracture of
e. 24. the middle third of the right femur.
Corporal C. D., "G," 88th Indiana: Chickamauga, 20th September; died, Murfreesboro', Tenn., 16th October, 1863.
Contributed by Surgeon I. Moses, U. S. Vols.

2131. Four inches of the middle third of the left femur, greatly comminuted and removed. The fragments are partly
e. 25. necrosed and have irregular osseous deposits.
Sergeant R. McC., "C," 2d Missouri: Chickamauga, 20th September; admitted hospital, Murfreesboro', the same day; specimen removed by Surgeon I. Moses, U. S. Vols., 18th October; died, 25th October, 1863.
Contributed by the operator.

1021. Fragments of the upper third of the shaft of the left femur. The pieces are necrosed and represent nearly five
e. 26. inches of the continuity. The extremities were removed by the chain saw.
Private J. A. C., "B," 12th Massachusetts: Fredericksburg, 13th December; admitted hospital, Alexandria, 19th December, 1862; specimen removed, 15th January, 1863.
Contributed by Acting Assistant Surgeon R. Reyburn.

1277. Fragments, five inches in length and one and a half in breadth, removed from the right femur for a comminuted
e. 27. fracture of its middle third.

Private J. E. W., "F," 13th New Jersey: Chancellorsville, 3d May; a prisoner ten days; removed by Surgeon W. H. Twiford, 27th Indiana, Twelfth Corps Hospital, 17th May; removed to Washington, 14th June, 1863; discharged the service, with four and a half inches shortening, 8th April, 1864.

Contributed by Assistant Surgeon J. E. Freeman, 13th New Jersey.

1278. Two fragments, representing six inches in length and one-fourth of the circumference of the left femur, removed
e. 28. from a fracture of the upper third.

Corporal L. P., "A," 2d Massachusetts: Chancellorsville, 3d May; admitted Twelfth Corps Field Hospital, 14th; removed by Surgeon W. H. Twiford, 27th Indiana, 15th May; removed to Washington, 14th June; died, 15th June, 1863.

Contributed by Assistant Surgeon J. E. Freeman, 13th New Jersey.

536. The lower half of the right femur, exhibiting an osteo-plastic operation. A musket ball entered the outer surface
e. 29. of the outer condyle and escaped from the posterior surface in the middle of the lowest third. The bone was much broken on the posterior surface. The femur was amputated a short distance above the wound of entrance, the patella being included in the anterior flap; the line of section not having escaped the wound, another third of an inch was removed; the femoral surface of the patella was then sawn off and the two cut surfaces of the bone were brought in apposition. The laminated portion of the femur, however, was fractured half an inch above this point, and fissures extended two inches further. On the sixth day sloughing commenced, on the eighth signs of gangrene were noticed, and on the ninth the femur was amputated in the middle third (on account of the burrowing of pus) for secondary hæmorrhage from the popliteal. No plastic deposit could be observed immediately after the operation.

Private B., 20: Fredericksburg, 13th December; osteo-plastic operation by Assistant Surgeon J. W. S. Gouley, U. S. Army, 16th; amputated by Surgeon J. P. Prince, 36th Massachusetts, 25th; transferred to Washington, 26th; died, 28th December, 1862

Contributed by Surgeon J. P. Prince, 36th Massachusetts.

See classes **XIII.** A. B. d.; **XXIII.** A. B.

For other illustrations, see 1522, **XIII.** A. B. b. 21; 3854, **XIII.** A. B. d. 58; 2229, **XIII.** A. B. d. 67; 4628, **XXVI.** A. 2, 55.

f. STUMPS.

1537. A small section of the shaft of the femur, of which the extremity is denuded. Probably a protruding bone, and
f. 1. believed to be from the stump in the case of—

Private J. S., "A," 55th Ohio.

Contributed by Surgeon J. A. Lidell, U. S. Vols.

151. Necrosed ring of bone, one inch long, removed from a protruding and superficially necrosed femur after
f. 2. amputation.

Contributed by Surgeon J. C. Dorr, U. S. Vols.

3509. One inch of the shaft of the femur, apparently reamputated for protrusion. There is a faint etching by necrosis
f. 3. on its surface.

Contributed by Surgeon Robert William Pounds.

655. The protruding stump of the femur, removed to the extent of one and a half inches. The second operation too
f. 4. closely followed the first for the specimen to show any serious pathological change.

Sergeant J. G., "D," 88th New York: Fredericksburg, 14th December; admitted hospital, Washington, 26th; removed by Acting Assistant Surgeon C. H. Bowen, 27th December, 1862; died, 23d February, 1863.

Contributed by the operator.

2945. Three and a half inches of the shaft of the femur, removed on account of sloughing of the stump two days after
f. 5. amputation The specimen presents no pathological appearance. Death from pyæmia followed in three days.

Private H. G. B., 37th Wisconsin.

Contributed by Acting Assistant Surgeon H. G. Bates.

4219. Five inches of the stump of the right femur, removed for protrusion from suppuration. The extremity exhibits a
f. 6. ring of necrosis bordered by slightly thickened periosteum.

Corporal D. W., "H," 15th Virginia, 19: Cedar Creek, 19th October; admitted hospital with amputated thigh, Baltimore, 26th October; reamputated by Surgeon Z. E. Bliss, U. S. Vols., 30th December, 1864; died from pyæmia, 16th January, 1865.

Contributed by the operator.

See 4223, **XVIII. II.** A. B. c. 12.

1890. Three inches from the stump of the left femur, after death by pyæmia seventeen days after amputation in the
f. 7. lowest third. The extremity is necrosed nearly half an inch, the periosteum variably thickened, and, when recent, the medullary membrane was vascular, and at the extremity gangrenous. The specimen is sawn longitudinally and exhibits this indifferently.

Private W. S., "E," 119th Pennsylvania, 40: leg badly fractured, Rappahannock Station, 7th November; admitted hospital, Washington, 9th; amputated by Assistant Surgeon George A. Mursick, U. S. Vols., 14th November; died from pyæmia, 1st December, 1863.

Contributed by Surgeon John A. Lidell, U. S. Vols.

See 1887, **XVIII. II.** A. B. c. 18; 1888, **XVIII. III.** A. B. a. 6; 1889, **XX.** C. B. 2.

3824. Three and one-fourth inches of the stump of the femur, one month after amputation. There is no effort whatever
f. 8. at repair, but the specimen is much eroded superficially.

Private H. B. L., "F," 13th Georgia (Rebel): Monocacy Junction, 9th July; amputated by Surgeon C. H. Todd, (Rebel,) 11th July; died, Frederick, 12th August, 1864.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

143. Four and a half inches of the stump of an amputated femur, showing a ring of necrosis near the extremity of the
f. 9. bone where a sequestrum would have formed. A trivial osseous deposit fringes the border.

Contributed by Surgeon O. A. Judson, U. S. Vols.

2115. A wet preparation of four inches of the stump of the femur, five days after amputation. The periosteum is
f. 10. wanting from the extremity of the bone, as though torn off.

Contributed by Surgeon Justin Dwinelle, 106th Pennsylvania.

See 2087, **XXI.** A. B. b. 5.

2930. The stump of the left femur, after death by pyæmia. A ring at the extremity was in process of necrosis, and the
f. 11. diseased action extended for several inches. A slight band of callus embraced the bone just above its end.

Private R. B., "F," 118th New York, 33: knee injured in a fracture of the leg by solid shot, and thigh amputated in the lowest third, Cold Harbor, 3d June; admitted hospital, Washington, 11th; secondary hæmorrhage controlled at the bleeding point, 22d; pyæmia appeared, 30th June; died, 8th July, 1864.

Contributed by Surgeon O. A. Judson, U. S. Vols.

See class **XIV.** A. A. e.

1521. Six inches of the stump of the femur, with a very narrow ring of completely necrosed bone at the extremity.
f. 12. The entire specimen shows irregularly thickened periosteum with superficial necrosis. On the posterior border of the extremity there is a deposit of loose-textured callus.

Contributed by Surgeon John A. Lidell, U. S. Vols.

279. Five inches of the shaft of the femur, said to be from a second amputation. It is more probably a stump
f. 13. removed post mortem. It shows a slight deposit of callus, with considerable necrosis, and presents the appearance of having protruded.

Contributed by Surgeon J. T. Hodgen, U. S. Vols.

713. One inch of the stump of a femur, carious and slightly rounded after amputation.
f. 14. Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

1897. One inch of the extremity of the stump of the femur, probably amputated for protrusion. A very large irregular
f. 15. deposit of callus is thrown around its circumference.

Received after Gettysburg.

4221. Three and a half inches of the stump of the right femur, tolerably well rounded and exhibiting at the extremity
f. 16. several irregular and extensive processes of callus, the undoubted result of displaced periosteum.

Contributor and history unknown.

3698. Three inches of the necrosed stump of the femur, surrounded by a firm and uniform deposit of callus and
f. 17. removed on account of protrusion. The specimen shows an attempt made to divide the sequestrum by a circular saw introduced into the calibre of the bone with the intention of withdrawing it from the extremity, which was frustrated by the breaking of the instrument.

Private E. R., "G," 12th Wisconsin: specimen removed by Surgeon H. Culbertson, U. S. Vols., Madison, Wis., 18th June, 1864.

Contributed by the operator.

See 2990, **XXV.** A. B. b. 131.

2756. An inch and a half of the stump of the left femur, removed eleven months after the first amputation. A small
f. 18. sequestrum lies loose in the specimen, which embraces much new bone.

Private D. McC., "G," 149th New York, 24: left thigh amputated on the field, Gettysburg, 3d July, 1863; admitted hospital, Philadelphia, 21st March; operation performed by Acting Assistant Surgeon G. B. Boyd, 26th May, 1864. Recovered.

Contributed by the operator.

2340. Four inches of the lower portion of the right femur, originally amputated through the condyles and reamputated
f. 19. for secondary hæmorrhage. The specimen presents no pathological appearance.

Private D. M., "C," 90th Pennsylvania: secondary amputation by Surgeon I. Ebersol, 19th Indiana; excessive secondary hæmorrhage; reamputation and fatal result about 20th May, 1864.

Contributed by Acting Assistant Surgeon C. H. Von Tagen.

3856. Three inches of the stump of the left femur, after death from pyæmia twenty-five days after amputation, showing
f. 20. no effort on the part of nature toward restoration. The specimen is eroded.

Private J. L., "E," 60th Georgia, (Rebel,) 36: femur fractured by a conoidal ball in the lowest third, Gettysburg, 1st July; admitted hospital, Frederick, 6th; amputated in the lowest third, 15th July; died from pyæmia, 10th August, 1863.

Contributed by Acting Assistant Surgeon Goldsborough.

See 3987, **XIV.** A. B. f. 186; 3968, **XVIII. II.** A. B. c. 16; 3988, **XXII.** A. B. a. 5.

1697. The bones of the right knee, amputated in the lowest fourth of the femur for a fracture on the posterior surface
f. 21. of the condyles by a conoidal ball, together with two inches of necrosed bone subsequently removed from the stump, which was necrosed.

Private N. McL., "H," 7th Wisconsin, 23: Gettysburg, 2d July; admitted hospital, Baltimore, 6th July; amputated, 3d August; secondary hæmorrhage at intervals; necrosed extremity removed, 20th August, 1863; a sequestrum of two inches was removed, 9th March; discharged the service, 6th September, 1864.

Contributed by Surgeon C. W. Jones, U. S. Vols.

See 2154, **XIII.** A. B. g. 22.

See class **XIV.** A. B. f.

3848. Four and a half inches of the stump of the left femur, superficially necrosed.
f. 22. Private J. O. B., "E," 138th Pennsylvania, 35: knee fractured by shell, Monocacy Junction, 9th July; thigh amputated in the lowest third by Acting Assistant Surgeon W. S. Adams, Frederick, 11th July; died, 1st September, 1864.

Contributed by the operator.

See class **XIV.** A. A. e.

2019. The stump of the right femur, after amputation in the lowest third. The extremity is necrosed and exhibits a
f. 23. very trivial attempt at an involucrum.

Corporal F. M., "F," 26th Pennsylvania, 20: Locust Grove, Va., 27th November; admitted hospital, Alexandria, 4th December; amputated by Surgeon Charles Page, U. S. Army, 23d December, 1862; slight hæmorrhage, 9th—11th January; died, 19th January, 1864.

Contributed by Acting Assistant Surgeon C. W. Kœchling.

See 1433, **XIV.** A. B. f. 19.

1241. The two upper thirds of the right femur, being the stump from a patient who died from pyæmia following ampu-
f. 24. tation for gunshot of the lowest third of the right thigh. The case is remarkable in no symptom of pyæmia, excepting one or two slight chills, having presented itself until the day of death. The specimen was sawn through in the upper third and the bone found inflamed in its entire thickness. The end of the stump is necrosed, with a slight deposit of callus above it.

Private J. A. G., "G," 3d Wisconsin, 17: thigh fractured and amputated, Chancellorsville, 3d May; admitted hospital, Washington, 8th May; apparently doing well until he died suddenly of pyæmia, 9th June, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See 1242, **XVIII. II.** A. B. c. 15.

2698. Two inches of the necrosed extremity of the right femur, removed for protrusion.
f. 25. Private R. W. A., "B," 148th Pennsylvania, 22: femur fractured and amputated in the lowest third on the field, Spottsylvania, 13th May; admitted hospital, Washington, 25th May; specimen removed by Acting Assistant Surgeon W. H. Ensign, 24th June, 1864; transferred to Philadelphia, 14th May, 1865.

Contributed by Surgeon N. R. Mosely, U. S. Vols.

3573. The stump of the right femur in the lowest third. The specimen shows the extremity necrosed, with a deposit of
f. 26. callus above the dead portion.

First Lieutenant J. B., "F," 147th New York: leg carried off by a round shot and the femur amputated, 12th May; admitted hospital, Washington, 18th May; erysipelas involved the whole limb; died, 14th July, 1864. An abscess extended to the groin.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See classes **XV.** A. a. d.; **XXIII.** A. a.

3682. One inch of necrosed stump of the right femur in the lowest third, removed for protrusion after gangrene. The
f. 27. specimen shows the deposit of callus on the superior surface.

Corporal L. R. B., "F," 188th Pennsylvania, 19: leg fractured below the knee, Chapin's Farm, Va., 29th September; admitted hospital, New York Harbor, 7th October; amputated by Assistant Surgeon S. H. Orton, U. S. Army, 29th October, 1864; specimen removed, 10th January, 1865. Recovered.

Contributed by the operator.

See class **XV.** A. B. d.

3715. Four inches of the stump of the right femur, partly necrosed, supporting an irregular deposit of callus.
f. 28. Private D. A. K., "E," 57th Pennsylvania: femur fractured and amputated, lowest third, Deep Bottom, Va., 16th August; reamputated in the middle third, Beverly, N. J., 26th November; died, 13th December, 1864.

Contributed by Assistant Surgeon C. Wagner, U. S. Army.

1860. A longitudinal half of four and one-fourth inches of the stump of the right femur, fifteen days after amputation in
f. 29. the lowest third. The periosteum is detached one-fourth of an inch above the line of the saw and contains a small amount of callus. The extremity is necrosed. When recent the medullary membrane was more than normally vascular and the shaft somewhat thickened and more dense.

Private J. N. S., "D," 9th Louisiana, (Rebel,) 27: conoidal ball fractured the inner condyle of the femur, Rappahannock Station, 7th November; admitted hospital, Washington, 9th; amputated, 18th November; died, after secondary hæmorrhage, 3d December, 1863.

Contributed by Surgeon John A. Lidell, U. S. Vols.

See 1819, **XIV.** A. B. f. 101; 1892, **XVIII. II.** A. B. c. 21.

833. Five inches of the stump of the left femur, amputated in the lowest third for fracture of the knee. The bone
f. 30. protruded before death and the extremity was necrosed for half an inch, with a line of separation forming. The specimen shows an extensive deposit of callus on the border.

Private C. M., 3d Battery, South Carolina Artillery, (Rebel,) 17: South Mountain, 14th September; admitted hospital, Frederick, 21st September; amputated by Assistant Surgeon A. H. Smith, U. S. Army, 2d October; femoral artery ligated in its continuity for secondary hæmorrhage, 15th; died from exhaustion, 28th October, 1862.

Contributed by Acting Assistant Surgeon Redfern Davies.

See 777, **XIV.** A. B. f. 95.

4238. Five and a half inches of the shaft of the left femur, from a case of death by pyæmia following primary amputa-
f. 31. tion in the lowest third. The specimen presents a decided degree of necrosis and a slight foliaceous osseous deposit an inch from the extremity.

Private C. P., "E," 64th New York, 27: Hatcher's Run, 31st March; thigh primarily amputated in the lowest third; admitted hospital, Washington, 5th April; died of chronic pyæmia, 22d June, 1865.

Contributed by Assistant Surgeon W. F. Norris, U. S. Army.

482. Two and a half inches of the stump of the right femur, removed for protrusion. The specimen shows the original
f. 32. bone dead, and the disease is presumed to have extended very high.

Private A. L., Austin's Battery, (Rebel,) 22: knee fractured, Spanish Fort, Ala., 28th March; thigh amputated by Dr. Miller, (a civilian,) the same day; admitted hospital, Mobile, 7th June; specimen removed by Assistant Surgeon Mark A. Mosher, 20th Wisconsin, 8th June; prognosis unfavorable, 13th July, 1865.

Contributed by Surgeon S. Kneeland, U. S. Vols.

See class **XIV.** A. a. e.

3880. The stump of the right femur, three months after amputation. A rounded deposit of callus has occurred, and a
f. 33. partially detached sequestrum exists.

Private W. L., "K," 6th Vermont, 18: knee fractured and amputation performed, Funkstown, Md., 10th July; died from exhaustion, 22d October, 1863.

Contributed by Acting Assistant Surgeon W. S. Adams.

See class **XIV.** A. a. e.

2972. Two inches of the stump of the left femur, with two small sequestra. Callus has been thrown out before the
f. 34. death of the bone, giving a somewhat rounded extremity. The sequestra, which are artificially fastened to the specimen, were removed some time before the resection of the stump.

Private B. Y., "A," 9th New Jersey: knee fractured and thigh amputated in the lowest third, Walthall Junction, Va., 6th May; admitted hospital, Fort Monroe, 9th May; an inch of femur protruded; stump opened and specimen removed, 9th July, 1864. Recovered.

Contributed by Acting Assistant Surgeon A. R. Becker.

See classes **XIII.** A. B. g.; **XIV.** A. A. e.

3822. Two and a half inches of the stump of the right femur, amputated in the lowest third, rounded but carious.
f. 35. Private W. C., "C," 69th Pennsylvania: Antietam, 17th September; amputated, 21st September, 1862. Recovered.
Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

2624. Two inches of the stump of the right femur, removed on account of enlargement and deficient covering.
f. 36. Private R. M. F., "I," 24th Michigan: femur shattered, Gettysburg, 1st July; amputated in the lowest third, 6th July; admitted hospital, Philadelphia, 6th October; specimen removed by Acting Assistant Surgeon David Burpee, 4th November, 1863. Recovered.

Contributed by the operator.

See 1589, **XXV.** A. B. b. 94.

2853. Four inches of the stump of the right femur, six months after amputation. The involucrum is large, rounded
f. 37. and spongy, and contains a tubular sequestrum of its own length.

Private C. M., "G," 64th New York, 26: knee shattered, Hatcher's Run, Va., 25th March; thigh amputated in the lower third, 30th March; reamputated, Albany, N. Y., 26th September, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

See 3195, **XXV.** A. B. b. 147.

2152. Five inches of the stump of the left femur, with a good involucrum of newly formed bone and a sequestrum in
f. 38. process of separation.

Private J. L., "E," 2d New York State Militia, 30: leg fractured by a conoidal ball, Gettysburg, 2d July; amputated in the lowest third of the thigh, 5th July; femur exposed, about 1st October; admitted hospital and seven (?) inches femur removed by Surgeon C. W. Jones, U. S. Vols., Baltimore, 7th November, 1863; stump healed, 20th February, 1864.

Contributed by the operator.

2153. A section of new bone, two inches in length, apparently an involucrum from which a sequestrum has been removed,
f. 39. and believed to be a part of the specimen recorded below.

Corporal J. A. C., "K," 6th Wisconsin, 24: right thigh primarily amputated in the lowest third, Gettysburg, 1st July; the end of the femur exposed, 15th August; a sequestrum of four and a half inches removed, 30th October: admitted hospital, Baltimore, 7th November, 1863; four inches of the stump of the femur removed by Surgeon C. W. Jones, U. S. Vols., 2d February; discharged the service, 3d May, 1864.

Contributed by Surgeon C. W. Jones, U. S. Vols.

4196. A sequestrum and a large and firm involucrum of nearly three inches, from the stump of the left femur.
f. 40. Sergeant J. W., "A," 2d Pennsylvania Heavy Artillery, 20: femur fractured and amputated in the lowest third before Petersburg, 19th June; admitted hospital, with protrusion of one-fourth inch of bone, Philadelphia, from Washington, 22d October, 1864; specimen removed by Acting Assistant Surgeon H. M. Bellows, 6th January, 1865. Recovered.

Contributed by the operator.

1324. The two upper thirds of the left femur, being a stump, after death by pyæmia following amputation for fracture
f. 41. of the knee. A second conoidal ball had entered the thigh in the middle third, but could not be found during life. After death it was found in perfectly healthy tissue, but not encysted, having grazed the posterior portion of the bone. The specimen shows the shaft to have been necrosed its entire length, with a large ring of callus, like an exostosis, half an inch above the extremity.

Captain T. H. P., "C," 91st Pennsylvania, 29; shot while saving the regimental colors, Chancellorsville, 3d May; admitted hospital, Georgetown, 9th; amputated, 11th May died of pyæmia, 26th June, 1863.

Contributed by Assistant Surgeon H. W. Ducachet, U. S. Vols.

3499. Three inches of the shaft of the femur, being a reamputated stump. The extremity is necrosed, and no attempt
f. 42. at repair is to be seen on the specimen.

Contributed by Surgeon Robert Wm. Pounds.

4290. f. **43.** The stump of the left femur, after amputation at the junction of the lower thirds. The greater portion of the volume of the lower half of the specimen, which is carious, has been destroyed by suppuration. A thin involucrum of new bone exists at the extremity.

Private J. W. R., "A," 3d Maryland, 43: left leg fractured in the middle third, Cold Harbor, 2d June; thigh amputated, Field Hospital, 4th; admitted hospital, Washington, 15th June; died from exhaustion, 11th July, 1864.

Contributed by Surgeon G. L. Pancoast, U. S. Vols.

389. f. **44.** Four inches of the middle third of the left femur, removed by a second amputation. Except a minute periosteal disturbance on the inferior posterior border, there are no pathological appearances.

Contributed by Surgeon John T. Hodgen, U. S. Vols.

2563. f. **45.** Three inches of the stump of the left femur, amputated in the middle third. Necrosis, more marked posteriorly, bands the extremity.

Private W. E. C., "I," 5th North Carolina, (Rebel,) 32: Spottsylvania, 12th May; admitted hospital, Washington, 22d; amputated by Surgeon N. R. Mosely, U. S. Vols., 23d May; died, 17th June, 1864.

Contributed by the operator.

310. f. **46.** The lower half of the right femur, showing a stump and a second amputation. The femur has been amputated in the lowest fourth, as if for a fracture involving or below the knee. The extremity of the stump is superficially necrosed, and the anterior surface is slightly eroded, as if by ulceration. The second amputation has been made in the middle third.

Contributor and history unknown.

1947. f. **47.** Two inches of the stump of the left femur, with the extremity necrosed.

Private E. F. J., "I," 8th Georgia, (Rebel,) 18: knee fractured by a conoidal ball, Gettysburg, 2d July; amputated in the middle third, 12th August; died from exhaustion, 7th September, 1863.

Contributed by Acting Assistant Surgeon E. P. Townsend.

See class **XIV.** A. B. f.

3545. f. **48.** The right femur, amputated at the junction of the lower thirds and both portions bisected longitudinally. A conoidal ball is lodged in the spongy base of the bone, and the stump shows some necrosis, with no attempt at repair.

Corporal T. K., "H," 2d U. S. Cavalry, 24: Wilderness, 7th May; admitted hospital, with traumatic anuerism in the right popliteal space, Washington, 11th; amputated, 14th May; died from pyæmia, 4th June, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See 3579, **XVIII. II.** A. B. a 21; 3529, **XVIII. III.** A. B. a. 4.

See class **XXVII.** B. B. d.

986. f. **49.** Four inches of the stump of the femur, superficially necrosed, with an inconsiderable deposit of new osseous matter.

Private C. S. W., "G," 142d Pennsylvania, 25: admitted hospital, with the femur amputated at the middle third, Washington, 23d December, 1862; too feeble to be operated upon; died, 19th January, 1863.

Contributed by Surgeon R. B. Bontecou, U. S. Vols.

3165. f. **50.** The stump of the left femur, necrosed at the extremity. The medullary canal was filled with pus, but general pyæmia was not present.

Private W. B. C., "F," 53d Pennsylvania, 18: Cold Harbor, 3d June; thigh amputated in the middle third on the field, 4th; admitted hospital, Washington, 11th June; died from exhaustion, 10th July, 1864.

Contributed by Acting Assistant Surgeon A. Armstrong.

2720. f. **51.** Nearly five inches of the necrosed stump of a femur, excellently exhibiting the commencement of the formation of a sequestrum.

Private W. M., "A," 90th Pennsylvania: femur fractured and amputated in the middle third, Wilderness, 6th May; admitted hospital, Washington, 26th May; bone protruded, 10th June; specimen removed by Surgeon D. W. Bliss, U. S. Vols., 16th; died from exhaustion, 24th June, 1864.

Contributed by the operator.

2088. f. **52.** Five inches of the middle third of the femur, honeycombed by necrosis for two-thirds of its length following amputation for fracture of knee. The original line of section was oblique.

Private W. M., Gose's Arkansas Regiment, (Rebel,) 30: Helena, 4th July; amputated by Dr. R. M. McGowan, Memphis, 5th July; resection of stump, 1st August; second resection performed; died, 7th September, 1863.

Contributed by Assistant Surgeon J. C. G. Happersett, U. S. Army.

746. The stump of the left femur, amputated in the middle third for fracture of the knee. The extremity is irregularly
f. 53. necrosed for nearly two inches. Around the lower part of the sound bone is a small amount of callus. An abscess extended from the extremity to the promontory of the sacrum.

Private W. G. W., "F," 66th New York: Antietam, 17th September; amputated, 16th October; femoral artery ligated in Scarpa's triangle for secondary hæmorrhage, 25th October; died, Frederick, 3d November, 1862.

Contributed by Assistant Surgeon Philip Adolphus, U. S. Army.

See class **XIV.** A. B. f.

3084. The stump of the right femur, amputated in the middle third. A small sequestrum is nearly detached, and an
f. 54. irregular involucrum is forming about the extremity.

Private A. W., "C," 5th New York Cavalry, 18: admitted hospital, Washington, 24th May; died from exhaustion following enteric fever, 18th August, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

2918. The stump of the left femur, amputated at the junction of the lower thirds. A large abscess occupied the thigh
f. 55. to the lesser trochanter. An osseous deposit surrounds the bone an inch above the extremity. Necrosed action involves half the specimen.

Corporal A. P. H., "C," 1st Maine Heavy Artillery, 19: wounded and amputated, Petersburg, 18th June; admitted hospital, Washington, 28th June; died of osteo-myelitis, 1st August, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

2890. The stump of the right femur, amputated in the middle third, with a very large sequestrum in process of sepa-
f. 56. ration and a partial involucrum formed.

Private W. C., "B," 2d Pennsylvania Cavalry, 40: admitted hospital, amputated, Washington, 16th May; died from exhaustion, 27th July, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

See 4719, **XXVI.** A. 4, 164.

2006. The stump of the left femur in the middle third. A considerable ossific deposit exists half an inch from the
f. 57. extremity, where a commencing sequestrum appears.

Private W. S., "C," 7th Virginia, 21: tibia fractured, Pine Grove, Va., 28th November; admitted hospital, Alexandria, 4th December; amputated by Acting Assistant Surgeon J. Cass, 15th December, 1863; died, 6th January, 1864.

Contributed by the operator.

See 2007, **XIV.** A. B. f. 188; 2008, **XVIII. III.** A. B. a. 3.

3903. Two inches of the stump of the left femur, after death four weeks after amputation in the middle third. The
f. 58. extremity presents a ring of superficial necrosis.

Private C. F. R., "F," 124th Pennsylvania, 29: Antietam, 17th September, 1862; union occur red, but disorganization of knee followed erysipelas and amputation was performed 23d February; died from exhaustion, 21st March, 1863

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

See 3855, **XIII.** A. B. d. 44.

1963. The stump of the left femur. The commencement of necrosed action is observable about the extremity, and an
f. 59. irregular deposit of callus, the apparent result of abraded periosteum, is noticeable.

Private J. T. D., "A," 53d Virginia, (Rebel,) 26: left leg fractured in the lowest third by a conoidal ball, Gettysburg, 2d July; amputated in the middle third, 4th July; tibia protruded, necrosed, 1st October; sloughing and hæmorrhage occurred and a sequestrum of three inches removed from stump; thigh amputated in the middle third, 9th; bone protruded, 20th October; died from exhaustion, 5th November, 1863.

Contributed by Acting Assistant Surgeon E. A. Kœpner.

See 1975, **XV.** A. B. f. 44.

3858. The stump of the left femur, amputated in the middle third. Above the necrosed extremity a ring of callus is
f. 60. deposited. The head of the femur is eroded, but probably not as the result of disease.

Private W. F. G., "H," 2d Mississippi (Rebel): tibia fractured, Antietam, 17th September; amputated by Assistant Surgeon R. F. Weir, U. S Army, 22d December; slight secondary hæmorrhages, 27th–28th December, 1862; died from pyæmia, 15th January, 1863.

Contributed by the operator.

See 3893, **XV.** A. B. d. 94.

3818. The stump of the left femur, amputated at the junction of the lower thirds. The shaft is necrosed in its greater
f. 61. length, and the partial involucrum that surrounds it is broken down, as if by ulceration.

Private H. L., "A," 6th Pennsylvania Reserves, 25: fibula fractured, Antietam, 17th September; amputated in the upper thirds of the leg by Acting Assistant Surgeon A. V. Cherbonnier, Frederick, December, 1862; femur amputated by Surgeon J. B. Lewis, U. S. Vols., 15th January; femoral ligated for secondary hæmorrhage, 4th February; died from exhaustion, 31st March, 1863. Lungs crowded with tubercles.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

See 748, **XV.** A. B. d. 119; 3983, **XVIII. II.** A. B. b. 38.

834. Four inches of the stump of the right femur. There is a ring of necrosed bone in process of separation at the
f. 62. extremity, and an irregular formation of new bone from the periosteum, which has been carelessly detached and scraped up. Had this remained undisturbed it might have been useful; as it exists it is inconvenient. The protrusion of bone in this case was reduced from one and three-fourths inches to half an inch, by extension with broad adhesive straps.

Private W. H. McP., 50th Georgia (Rebel): femur fractured in the lowest third, South Mountain, 14th September; amputated in the middle third by a Rebel Surgeon, 24th September; died from exhaustion, Frederick, 27th October, 1862.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

2885. Eight inches of the stump of the right femur. A large sequestrum is partially loose within a moderate involu-
f. 63. crum of soft osseous matter. At death large abscesses occupied the thigh, and the femur protruded an inch.

Private S. D., "K," 142d Pennsylvania, 20: wounded, and amputated in the middle third on the field, Wilderness, 12th May; admitted hospital, Washington, 16th May; died from secondary hæmorrhage and exhaustion, 21st July, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

3837. The stump of the left femur, amputated in the middle third. A small sequestrum extends up the shaft, and an
f. 64. involucrum covers half the specimen. The extremity is somewhat rounded.

Private W. H. P., "I," 3d ———, 20: ankle fractured by grape, Antietam, 17th September; leg amputated in the middle third; reamputated in the thigh, 30th November, 1862; attacked with erysipelas; died from exhaustion, 3d May, 1863.

Contributed by Acting Assistant Surgeon A. North.

See 3962, **XXI.** A. B. b. 7.

See class **XVI.** A. A. e.

3518. The stump of the left femur, amputated at the junction of the lower thirds. Bone protruded two and a half inches
f. 65. at the time of death. A loose sequestrum lies in the specimen, which shows a very fine involucrum.

Corporal T. T., "C," 12th Georgia (Rebel): before Washington, 12th July; admitted hospital and amputated by Assistant Surgeon J. C. McKee, U. S. Army, 14th July; died from exhaustion, 26th December, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

See 4719, **XXVI.** A. 4, 165.

1099. The upper half of the left femur, showing a large, nearly detached sequestrum of considerable size, with the newly
f. 66. deposited callus as an involucrum.

Private J. L., "G," 69th New York: femur fractured by a conoidal ball, Antietam, 17th September; admitted hospital, Frederick, 24th September; amputated, 8th October; died from exhaustion, 11th December, 1862.

Contributed by Surgeon H. S. Hewit, U. S. Vols.

2597. One and a half inches of the femur, with a large deposit of spongy callus protruded from the stump of the middle
f. 67. third.

Private A. F., 150th Pennsylvania: removed by Acting Assistant Surgeon J. H. Jamar, Philadelphia. Healed.

Contributed by Acting Assistant Surgeon J. H. McClellan.

3342. The stump of the left femur, amputated in the
f. 68. middle third for fracture of the knee. The entire shaft of the bone is necrosed and enveloped in a slight foliaceous involucrum. *See figure 97.*

FIG. 97. Necrosed stump of left femur. *Spec.* 3342.

Private A. H., "B," 6th New Jersey: Wilderness, 6th May; admitted hospital, Alexandria, 24th May; amputated by Surgeon E. Bentley, U. S. Vols., 15th June; died from exhaustion, 26th July, 1864.

Contributed by the operator.

See class **XIV.** A. B. f.

2965. The stump of the left femur, amputated in the middle third for secondary hæmorrhage following gunshot fracture
f. 69. of the upper portion of the leg. The specimen shows a large rounded, but perfectly spongy stump.

Private A. P., "C," 6th New York Cavalry, 24: Front Royal, Va., 16th August; admitted hospital, Baltimore, 21st August; amputated, 3d September, 1864; died from osteo-myelitis, 8th July, 1865.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

See class **XV.** A. B. d.

1487. The stump of the right femur, one month after amputation for wound by grape shot involving the knee. The
f. 70. extremity is carious and there is no attempt at repair.

Corporal J. C., "A," 7th New York, 25: wounded and amputated in middle third, South Side R. R., 2d April; admitted hospital, Washington, 6th April; died of pyæmia, 7th May, 1865.

Contributed by Brevet Captain W. F. Norris, Assistant Surgeon, U. S. Army.

1101. The stump of the right femur, after amputation in the upper third. There is very little observable change.
f. 71. Private D. O'B., "H," 69th New York: the ball entered the thigh at the upper third and fractured the bone at the lowest third, Antietam, 17th September; admitted hospital, Frederick, 24th September; amputated by Surgeon H. S. Hewit, U. S. Vols., 5th December; died from exhaustion, 16th December, 1862.
Contributed by the operator.
See 755, **XIII.** A. B. d. 68.

3887. The upper third of the left femur, removed twenty-four days after amputation.
f. 72. Private M. H. B., "D," 4th Vermont, 19: femur fractured and amputated, Funkstown, Md., 10th July; admitted hospital, Frederick, 12th July; died from exhaustion, 3d August, 1863.
Contributed by Acting Assistant Surgeon Martin.

2011. The stump of the right femur, amputated in the upper third for fracture of the knee by a conoidal ball. The lowest
f. 73. third of the specimen is necrosed.
Private H. C., "K," 3d Michigan, 33: Jacob's Ford, Va., 27th November; admitted hospital in bad condition, Alexandria, 4th December; operation by Surgeon E. Bentley, U. S. Vols., 13th December, 1863; died of pyæmia, 10th January, 1864.
Contributed by the operator.
See 2012, **XX.** C. B. 5.
See class **XIV.** A. B. f.

2992. The stump of the right femur, amputated in the upper third and greatly necrosed to the trochanters.
f. 74. Contributor and history unknown.

973. The upper portion of the left femur, six weeks after primary amputation in the middle third for fracture through
f. 75. the knee by a conoidal ball. A heavy sequestrum, partially separated, exists at the sawn extremity, above which is a collection of callus irregularly placed. The anterior surface of the shaft, to the trochanters, presents a thickened periosteum; much of the remainder of the bone is denuded.
Private G. W., "H," 26th New York, 18: Fredericksburg, 13th December; amputated on the field; admitted hospital, after much exposure, Washington, 23d December, 1862; hæmoptysis, 6th January; died, 23d January, 1863.
Received from Lincoln General Hospital.
See class **XIV.** A. B. f.

1096. The stump of the upper third of the right femur, with a large portion of necrosed bone nearly detached with very
f. 76. little callus.
Believed to be the case of M. S., "B," 61st New York, 20: minie ball entered the lowest third of the left thigh, Antietam, 17th September; admitted hospital, Frederick, 24th September; ball found lying against the upper third of the femur and removed, 22d October; amputated, 15th November; died, 24th November, 1862.
Contributed by Surgeon H. S. Hewit, U. S. Vols.

2882. The upper third of the left femur, with a partially detached sequestrum and handsome but useless foliaceous deposit,
f. 77. from a stump in which secondary hæmorrhage occurred.
Private L. W., "C," 26th Michigan: knee fractured, Spottsylvania, 12th May; admitted hospital, Washington, 30th May; amputated by Acting Assistant Surgeon A. Ansell; died from secondary hæmorrhage, 19th July, 1864.
Contributed by Acting Assistant Surgeon H. M. Dean.
See class **XIV.** A. B. f.

3886. The stump of the right femur, tolerably well rounded, ten and a half months after amputation in the upper third.
f. 78. Private F. N., "F," 18th New York: femur fractured in the middle third, Antietam, 17th September; amputated by Assistant Surgeon H. A. DuBois, U. S. Army, Frederick, 1st October; died from tuberculous disease, 8th August, 1863.
Contributed by the operator.

1007. The upper portion of the right femur, after amputation below the trochanters, as seen in a group of five beautiful
f. 79. specimens of involucra and sequestra.
Contributed, without history, by Acting Assistant Surgeon George F. Shrady.
See 4719, **XXVI.** A. 4, 162.
See class **XIII.** A. B. g.;

3768. The upper half of the right femur, being a stump. The extremity for several inches is necrosed, without an
f. 80. indication of repair in the specimen.
Contributor and history unknown.

602. One and a half inches from the stump of the left femur, reamputated eighteen months after amputation at the
f. 81. junction of the lower thirds. The extremity of the specimen is a little carious, but the greatest portion of the circumference is surrounded by compact new bone.

Color Sergeant H. C., "C," 125th New York, 22: knee shattered by a conoidal ball, Wilderness, 6th May; amputated, 17th May; admitted hospital, Albany, 17th November, 1864; sequestrum removed, 6th February; discharged the service, 22d September; admitted Albany City Hospital, 9th December, 1865; specimen removed by Assistant Surgeon J. H. Armsby, U. S. Vols.

Contributed by the operator.

See 666, **XIII.** A. B. g. 40; 294, **XXV.** A. B. b. 154.

For other illustrations, see 3738, **XII.** A. B. e. 4; 81, **XII.** A. B. e. 7; 448, **XIV.** A. B. f. 1.

g. Sequestra.

423. Seven small fragments of dead bone from the femur.
g. 1. Private J. T., "D," 4th New Jersey: probably Gaines' Mill, 27th June; admitted hospital, Baltimore, 21st July; fragments removed, 12th August, 1862; discharged the service, 3d March, 1863.

Contributed by Surgeon A. B. Hasson, U. S. Army.

725. Two small exfoliations, apparently from the stump of the femur.
g. 2. Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

3840. A lance-shaped sequestrum, three fourths of an inch in length, with a fragment of ball embedded in it, removed
g. 3. from a femur fractured by a conoidal ball in the middle third. A number of other pieces of bone were removed at different periods.

Private W. F. R., "B," 26th Alabama, (Rebel,) 22: South Mountain, 14th September, 1862; admitted hospital with one and a half inches shortening, Frederick, 15th January; specimen removed, 10th March; transferred, convalescent, to Baltimore, 28th May, 1863.

Contributed by Acting Assistant Surgeon G. M. Paullin.

644. A small sequestrum, removed from the right femur comminuted in the upper third by a round ball.
g. 4. Private T. I. C., "F," 87th New York: admitted hospital, Philadelphia, 28th June; specimen removed by Acting Assistant Surgeon T. G. Morton, 1st August; discharged, cured, with two inches shortening, 29th September, 1862.

Contributed by the operator.

703. A circular sequestrum, small and irregular, from the stump of the femur.
g. 5. Contributed, without history, by Dr. Beale.

1265. A small crown-shaped sequestrum, from the stump of the left femur.
g. 6. Private J. G. S., "I," 20th Massachusetts: near Fredericksburg, 10th December; thigh amputated in the lowest third in the field, 13th; admitted hospital with femur protruding, Washington, 26th December, 1862; specimen removed, 22d February, 1863; transferred to Philadelphia, 8th May; reamputated by Acting Assistant Surgeon R. J. Levis, 8th October; died, 16th October, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

4174. A small, nearly circular sequestrum, from the stump of the femur.
g. 7. Contributor and history unknown.

705. A segment of exfoliated bone, from the extremity of an amputated femur.
g. 8. Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

660. A small sequestrum, from the stump of the femur.
g. 9. Contributed by Surgeon J. L. Dorr, U. S. Vols.

1408. A small crown-shaped sequestrum, with two spiculæ of necrosed bone removed four months after amputation.
g. 10. Private J. McG., "I," 4th U. S Artillery: left femur fractured by gunshot, Columbus, Ga., 16th April; thigh amputated in the middle third, 9th May; specimen removed by Assistant Surgeon P. S. Conner, U. S. Army, Fort Columbus, New York Harbor, 7th September, 1865; discharged the service, October, 1865.

Contributed by the operator.

2968. A small ring of necrosed bone, from the extremity of the right femur.
g. 11. Sergeant J. A. T., "G," 79th New York, 42: amputated, 9th May; specimen removed by Acting Assistant Surgeon S. Teats, New York, 29th July; discharged, 15th August, 1864.
Contributed by the operator.

2814. A ring of sequestrum, from the stump of the left femur amputated in the lowest third
g. 12. Private D. G., "H," 3d Vermont, 22: left knee fractured, Wilderness, 10th May; amputated, 12th; admitted hospital, Washington, 25th May; specimen removed by Surgeon N. R. Mosely, U. S. Vols, 1st July, 1864. Recovered.
Contributed by the operator.

889. A ring of necrosed bone, removed for protrusion from the stump of a femur after amputation.
g. 13. Contributed by Acting Assistant Surgeon Goldsborough.

3114. Eight small sequestral fragments, from the stump of the right femur.
g. 14. Private T. C., "G," 142d New York: thigh fractured and amputated, 15th January; specimen removed by Acting Assistant Surgeon S. Teats, New York, 7th July, 1865.
Contributed by the operator.

715. A slender irregular sequestrum, of two and a half inches, from the stump of the femur.
g. 15. Contributed, without history, by Surgeon B. A. Vanderkieft, U. S. Vols.

669. A necrosed spicula of bone, nearly four inches in length and longitudinally fractured the whole distance.
g. 16. Apparently two sequestra from each side of the line of fracture.
Private W. B., "E," 9th Massachusetts, 55: right femur partially fractured, Gaines' Mill, Va., 27th June; admitted hospital, from Richmond, Philadelphia, 30th July, 1862. Specimen subsequently removed. Subject convalescent.
Contributed by Surgeon J. A. Neill, U. S. Vols.
See class **XIII.** A. B. a.

4011. Two small exfoliated pieces of bone, apparently from the femur.
g. 17. Contributor and history unknown.

714. A nearly circular, irregular sequestrum, from the stump of a femur, an inch and a half in its greatest length.
g. 18. Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

990. A small circle of bone, which protruded after amputation of the thigh, with a process of an inch and a half.
g. 19. Corporal W. P., 1st Delaware, 24: admitted hospital, Washington, 18th December; thigh amputated in the middle third, 28th December, 1862; sequestrum came away ten weeks afterward; transferred to Delaware, 29th May, 1863. Recovered.
Contributed by Surgeon R. B. Bontecou, U. S. Vols.

1416. A nearly circular sequestrum and four small fragments, from the stump of the left femur one year after amputation.
g. 20. Private J. M., "G," 126th New York, 23: leg amputated, Gettysburg, 3d July; thigh amputated at the lowest third, Philadelphia, 3d November, 1863; specimens removed by Acting Assistant Surgeon S. Teats, New York, 23d November, 1864. Recovered.
Contributed by the operator.

408. Four necrosed fragments, one of which is nearly two inches in length, from the middle third of the shaft of the
g. 21. right femur, after gunshot. One bullet inflicted a flesh wound, and a second entered posteriorly ten inches above the knee and passed horizontally forward, fracturing the bone, and part of it emerged anteriorly.
Private W. O. H., "H," 4th New York, 18: Gaines' Mill, 27th June; admitted hospital, Baltimore, July; fragments of bone and portions of bullets removed, 12th August, 1862; doing well, 20th February, 1863.
Contributed by Surgeon A. B. Hasson, U. S. Army.

2154. A necrosed conical segment of the stump of the right femur, two inches long, removed as a sequestrum.
g. 22. Private V. McL., "H," 7th Wisconsin, 23: leg fractured at Gettysburg; thigh amputated in the lowest third, Baltimore, 3d August; secondary hæmorrhage at intervals, and two inches necrosed extremity removed, 20th August, 1863; sequestrum removed, 9th March, 1864. Recovered.
Contributed by Surgeon C. W. Jones, U. S. Vols.
See 1697, **XIII.** A. B. f. 21.

1227. The lower portion of the right femur, amputated in the middle third for a fracture of the inner condyle from a
g. 23. round ball, and a complete sequestrum of an inch and a half taken from the stump. Two pieces of protruding necrosed bone were sawn off, but have been lost.

Private P. M., "K," 2d Wisconsin, 20: Second Bull Run, 28th August; amputated by Acting Assistant Surgeon Skillern, Washington, 12th September, 1862; sequestrum removed, 15th January, 1863. Recovered.

Contributed by Acting Assistant Surgeon George McCoy.

893. A small circular sequestrum, with a process two inches long, from the stump of a femur.
g. 24. Contributed by Acting Assistant Surgeon W. W. Keen, jr.

1665. An irregular circular sequestrum, two inches in its greatest length, from the stump of the left femur.
g. 25. Corporal F. P., "F," 3d Virginia, 28: Second Bull Run, 29th August; leg amputated in the upper third same day; thigh amputated in the lowest third for gangrene, Georgetown, latter part of October, 1862; gangrene recurred several times; stump opened and specimen removed on account of pain by Surgeon D. W. Bliss, U. S. Vols., Washington, 6th August, 1863. Result favorable.

Contributed by the operator.

See class **XXIII.** A. B.

547. Two delicate sequestra, three and four inches in length, removed from the stump of the left femur three months
g. 26. after injury.

Private J. W. C., "G," 5th Wisconsin, 24: Sailor's Creek, Va., 6th April; amputated in the middle third by Surgeon Allen, 5th Wisconsin, 8th April; admitted hospital, Baltimore, 26th June; specimen removed, 13th July, 1865.

Contributed by Surgeon T. Sim, U. S. Vols.

3193. Five fragments of necrosed bone, from the stump of the left femur.
g. 27. Corporal M. D., "H," 46th Pennsylvania: wounded and amputated, Dallas, Ga., 25th May, 1864; specimens removed by Acting Assistant Surgeon S. Teats, New York, 3d May, 1865.

Contributed by the operator.

2156. An open sequestrum of three inches, from the stump of the left femur.
g. 28. Private G. A., "F," 62d Pennsylvania, 18: left knee and right foot fractured, Gettysburg, 2d July; thigh amputated, 3d July; admitted hospital, Baltimore, 7th November; specimen removed, 21st December, 1863; stump healed, 24th March, 1864.

Contributed by Surgeon C. W. Jones, U. S. Vols.

See class **XIV.** A. B. f.

4347. A conical sequestrum, three inches in length, with three smaller fragments, from the stump of the left femur in
g. 29. the middle third.

Private H. W., "H," 14th U. S. Infantry, 25: knee fractured, Spottsylvania, 10th May; admitted hospital, Washington, 14th May; amputated by Acting Assistant Surgeon D. J. Evans, 8th June, 1864; femur became necrosed with abscesses in the stump, and specimen removed by Surgeon R. B. Bontecou, U. S. Vols., May, 1865; transferred to Philadelphia convalescent.

Contributed by the operator.

See class **XIV.** A. B. f.

113. A heavy, irregular sequestrum, with two processes, each two inches in length, removed from the stump of the
g. 30. left femur.

Private W. L. D., "I," 5th New York, 19: Cold Harbor, 2d June; thigh amputated in the lowest third on the field; admitted hospital, Baltimore, 28th November, 1864; sequestrum removed, 16th February; transferred to Philadelphia, 3d April, 1865.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

3231. A nearly tubular sequestrum, four inches in length, in two longitudinal portions, from the femur.
g. 31. Contributor and history unknown.

108. A honeycombed tubular sequestrum of three inches, from the stump of the right femur.
g. 32. Private W. H. S., "G," 14th West Virginia, 23: knee fractured, Lynchburg, 18th June; thigh primarily amputated by a Rebel Surgeon; admitted hospital, Baltimore, 28th November, 1864; specimen removed, 1st February; discharged, 2d June, 1865.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

See class **XIV.** A. A. e.

107. A sequestrum of two and a half inches, from the stump of the left femur.
g. 33. First Sergeant E. D. U., "G," 15th New Jersey, 22: femur fractured in the lowest third, Cedar Creek, 19th October; admitted hospital, Baltimore, 24th October; amputated in the middle third by Acting Assistant Surgeon E. G. Waters, 14th November, 1864; specimen removed, 8th March; discharged, 29th May, 1865. Subsequently disarticulated at the hip joint and recovered. (See *Am. Journ. Med. Sci.*, July, 1866.)
Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.
See 3734, **XIV.** A. B. f. 197; 4719, **XXVI.** A. 4, 159.
See class **XII.** A. B. e.

1051. A sequestrum of four inches, from the stump of the right femur amputated in the lowest third.
g. 34. Private E. F, "K," 12th New York, 24: tibia and fibula fractured, Second Bull Run, 30th August; lay seven days on the field; thigh amputated, 8th September; specimen removed seven weeks afterward, Washington, October, 1862; patient doing well, 12th March, 1863.
Contributed by Medical Cadet Burt G. Wilder.
See class **XV.** A. B. d.

4247. A tubular sequestrum, three inches in length, removed from the stump of the right femur.
g. 35. Corporal C. H., "G," 29th Indiana, 21: primarily amputated in the lowest third, before Atlanta, Ga., 12th August; admitted hospital, Louisville, 3d December, 1864; specimen removed, 24th February, 1865. Recovered rapidly.
Contributed by Surgeon R. R. Taylor, U. S. Vols.

706. A heavy sequestrum of four inches in length, from the stump of an amputated femur.
g. 36. Private W. S., "F," 7th Indiana: knee fractured, Cedar Mountain, Va., 9th August; admitted hospital, Alexandria, 12th; amputated in the lowest third by Surgeon J. E. Summers, U. S. Army, 15th August; sloughing of stump commenced, 5th November; specimen removed, 15th; severe hæmorrhage and femoral ligated, 19th November, 1862. Recovered.
Contributed by the operator.
See 40, **XIV.** A. B. f. 70.

2452. A conical sequestrum, four inches in length, from the right femur, three months after amputation.
g. 37. Private M. S., "B," 183d Pennsylvania: patella fractured, South Side R. R, Va., 1st April; admitted hospital, Washington, 6th; amputated in the lowest third by Acting Assistant Surgeon D. L. Haight, 8th April; specimen removed, 17th July; still under treatment, 2d November, 1865.
Contributed by Brevet Captain W. F. Norris, Assistant Surgeon, U. S. Army.
See 1484, **XIV.** A. B. f. 58.

2908. A very heavy conical sequestrum, three and a half inches long, removed from the stump of the femur twenty-six
g. 38. days after amputation.
Private L. A., "H," 63d Pennsylvania, 20: right thigh amputated at junction of the lower thirds, for fracture of the knee, by Acting Assistant Surgeon M. F. Price, Washington, 27th May; specimen removed, 22d June, 1864. Recovered.
Contributed by the operator.
See class **XIV.** A. B. f.

3957. A sequestrum, four inches in length, from the stump of a femur. Supposed to be the following case:
g. 39. Private M. M., "H," 69th New York: femur fractured by a conoidal ball, 17th September; amputated, 27th; admitted hospital, Frederick, 29th September; secondary hæmorrhage and femoral ligated in the stump, 4th October; recommended for discharge, 16th December, 1862.
Contributed by Acting Assistant Surgeon W. S. Adams.

666. A conoidal sequestrum, four and a half inches in length, removed from the stump of the left femur nearly nine
g. 40. months after amputation in the lowest third.
Color Sergeant H. C., "C," 125th New York, 22: knee fractured, Wilderness, 5th May; admitted hospital, Alexandria, 14th; amputated in the lowest third by Surgeon E. Bentley, U. S. Vols., 17th May, 1864; specimen removed Albany, N. Y., 6th February; discharged the service, 22d September, 1865.
Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.
See 602, **XIII.** A. B. f. 81; 294, **XXV.** A. B. b. 154.

3276. A heavy tubular sequestrum, three inches in length, from the stump of the left femur.
g. 41. Sergeant P. H., "C," 125th New York: wounded and amputated, 18th May, 1864; specimen removed by Acting Assistant Surgeon S. Teats, New York, 5th February, 1865.
Contributed by the operator.

3027. A sequestrum, five inches in length, from the stump of the left femur.
g. 42. Private C. B., "C," 39th New York, 25: knee fractured, Bristoe Station, 14th October; thigh amputated in the lowest third by Assistant Surgeon Norman S. Barnes, U. S. Vols., Alexandria, 17th October, 1863; sequestrum removed, 20th February, 1864; discharged the service, 20th September, 1865.
Contributed by Acting Assistant Surgeon C. W. Kœchling.
See 2344, **XIV.** A. a. e. 34; 1787, **XXV.** A. B. b. 93.

1686. A spiral sequestrum of five inches, from the femur.
g. 43. Private W. C. T., "F," 55th Ohio, 17: Chancellorsville, 2d May; specimen removed, Washington, 11th September, 1863.
Contributed by Surgeon D. W. Bliss, U. S. Vols.

285. A slender sequestrum, seven inches in length, divided in the middle, removed a year after injury through a cloaca
g. 44. of one and a half inches longitudinal diameter, from a gunshot fracture of the upper third of the right femur.
Private J. O'B., "D," 1st U. S. Infantry: Wilson's Creek, Mo., 10th August, 1861; specimen removed by Surgeon T. F. Azpell, U. S. Vols., St. Louis, 17th August; subject nearly recovered, 17th October, 1862.
Contributed by the operator.

2373. A tubular sequestrum, nearly four inches in length, of small calibre and quite uniform in thickness, removed from
g. 45. the stump of the right thigh seven months after amputation.
Private V. La P., "A," 81st New York, 25: Cold Harbor, 3d June; amputated, 5th June, 1864; specimen removed, Albany, N. Y., 5th January; discharged the service, 16th June, 1865.
Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.
See 3765, **XXV.** A. B. b. 117.

2439. A handsome sequestrum, four and half inches in length.
g. 46. Contributed by Surgeon E. Griswold, U. S. Vols.

3015. A heavy tubular sequestrum, nearly five inches in length, removed from the stump of the right femur six months
g. 47. after amputation in the middle third.
Private R. H. P., "E," 7th Wisconsin, 33: Southside R. R., 31st March; admitted hospital with primary amputation, Washington, 4th April; specimen removed by Acting Assistant Surgeon Gibbons, 14th October, 1865.
Contributed by Brevet Captain W. F. Norris, Assistant Surgeon, U. S. Army.

1264. A semi-tubular sequestrum of four inches, from the stump of the left femur.
g. 48. Private H. B., "A," 88th Pennsylvania: Fredericksburg, 13th December, 1862; amputated on the field; admitted hospital, Washington, 26th December; specimen removed, 1st May; transferred to Philadelphia, 5th May, 1863. Recovered.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.

1971. A heavy tubular sequestrum, four and a half inches long, removed, by forcible traction, from the protruding stump
g. 49. of the right femur for pain and abscesses.
Private J. A. C., "K," 6th Wisconsin, 24: knee fractured, Gettysburg, 1st July; femur amputated in the middle third, 2d July; flaps sloughed, 15th August; sequestrum removed, 30th October; transferred, convalescent, 7th November, 1863.
Contributed by Acting Assistant Surgeon E. A. Kœpner.
See class **XIV.** A. A. e.

109. A tubular sequestrum of four inches, from the stump of the left femur.
g. 50. Private W. B. B., "K," 38th Pennsylvania, 27: knee fractured, Cedar Creek, 19th October; amputated in the lowest third of the thigh by Acting Assistant Surgeon B. B. Miles, Baltimore, 27th October 1864: specimen removed, 22d February, 1865. Recovered.
Contributed by the operator.
See class **XIV.** A. B. f.

3128. A heavy tubular sequestrum, four and a half inches in length, from the femur amputated in the middle third.
g. 51. Private P. W., "E," 37th Wisconsin, 38: wounded in both thighs, Cold Harbor, 3d June; one thigh amputated, 20th; admitted hospital, Washington, 24th June; sequestrum extracted and died, 22d August, 1864.
Contributed by Surgeon N. R. Mosely, U. S. Vols.

2232. A heavy tubular sequestrum, nearly five inches in length, removed from the stump of the left femur six months
g. 52. after amputation at the junction of the upper thirds.
Private J. F., "D," 15th Massachusetts, 35: femur fractured by a fragment of shell, Bristoe Station, Va., 14th October; amputated, Gordonsville, Va., 26th October; admitted hospital, Annapolis, from Richmond, 8th November, 1863; sequestrum removed by Surgeon B. A. Vanderkieft, U. S. Vols., 1st April; discharged the service, 24th May, 1864. Patient convalesced rapidly.
Contributed by Assistant Surgeon W. S. Ely, U. S. Vols.

1041. A sequestrum, five inches in length, from the stump of the right femur.
g. 53. Private J M. R., "H," 59th New York, 16: Antietam, 17th September; amputated in the middle third on the field, and admitted hospital, Smoketown, Md., 17th October, 1862; specimen removed, 14th March, 1863. Recovered.
Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

228. A sequestrum, five inches in length, from the stump of the left femur in its lowest third.
g. 54. Private J. P., "B," 29th Iowa, 21: wounded and captured, Mansfield, La., 30th April, 1864; amputated by a Rebel Surgeon, time and place unknown; admitted hospital with protruding bone, New Orleans, 27th February; specimen removed, 28th February; discharged, healed, 22d May, 1865.
Contributed by Surgeon Jacob Bockee, U. S. Vols.

3860. A very complete and uniform tubular sequestrum, five inches in length, evidently from the stump of a femur
g. 55. amputated in the lowest third.
Contributor and history unknown.

1557. A sequestrum, five inches in length, from the stump of the femur, removed seven and a half months after
g. 56. amputation.
Private J. L., "D," 6th Connecticut: wounded near Petersburg, 12th May; thigh amputated, 1st June, 1864; specimen removed by Acting Assistant Surgeon S. Teats, 15th January, 1865; transferred to De Camp Hospital, New York Harbor, 12th August, 1865.
Contributed by the operator.

252. A heavy conoidal sequestrum, five and a half inches in length, removed, four months after amputation, from a
g. 57. stump in the middle third of the right femur.
Private W. C., "E," 9th New Hampshire, 27: fractured and amputated, near Petersburg, 30th July; admitted hospital, Washington, 3d August; specimen removed from a good involucrum, 29th November, 1864. Recovered.
Contributed by Assistant Surgeon W. F. Norris, U. S. Army.
See 4628, **XXVI.** A. 2, 61.

1429. A very heavy cylindrical sequestrum, five and a half inches in length, with a segment of bony capsule attached,
g. 58. removed from the stump of the right femur eleven months after amputation.
Private S. C. Van H., "E," 4th New York Heavy Artillery, 33: right thigh fractured by gunshot in the lowest third, Ream's Station, 25th August; amputated at the junction of the lower thirds, 27th August, 1864; specimen protruding and removed, Baltimore, 13th July; recovered and discharged the service, 14th October, 1865.
Contributed by Surgeon Thomas Sim, U. S. Vols.

106. A sequestrum, five and a half inches in length and two ounces in weight, from the stump of a femur in the
g. 59. lowest third.
Private S. W. P., "G," 1st Rhode Island Artillery, 28: knee fractured, Cedar Creek, Va., 19th October; admitted hospital, Baltimore, 24th October: femur amputated by Acting Assistant Surgeon B. B. Miles, 10th November, 1864; specimen removed, 5th March; discharged, 1865.
Contributed by the operator.
See class **XIV.** A. B. f.

3898. A sequestrum, six inches long, in three fragments, removed from the left femur, which was partially fractured in
g. 60. the middle third.
Sergeant J. O'B., "F," 42d New York, 30: Antietam, 17th September, 1862; specimen removed by Acting Assistant Surgeon W S. Adams, Frederick, 1st February; died from pyæmia, 17th February, 1863.
Contributed by the operator.
See 3956, **XIII.** A. B. a. 32.

4239. A conical sequestrum, six inches in length, from the stump of the right femur in the middle third.
g. 61. Sergeant W. G. B., "B," 5th Michigan Cavalry: amputated on the field, Appomattox Station, Va., 8th April; admitted hospital, Washington, 7th May; specimen removed by Acting Assistant Surgeon H. E. Woodbury, 12th June, 1865.
Contributed by Surgeon D. W. Bliss, U. S. Vols.

1848. A tubular sequestrum, six inches in length, after osteo-myelitis of a stump.
g. 62. Contributed by Surgeon M. Goldsmith, U. S. Vols.

4349. A heavy conical sequestrum, six inches in length, removed six months after amputation of the thigh in the lowest
g. 63. third.
Private J. M., "K," 118th Pennsylvania, 32: knee fractured, Petersburg, 30th September; admitted hospital with amputated thigh, Washington, 7th October, 1864; specimen removed, 29th March, 1865. Convalescent.
Contributed by Surgeon R. B. Bontecou, U. S. Vols.
See class **XIV.** A. B. f.

3599. A very heavy tubular sequestrum, six inches in length, removed from the right femur four months after
g. 64. amputation.

Private O. V., "B," 9th New Hampshire, 24: wounded, 28th May; admitted hospital with fracture of middle third of the right tibia and limb erysipelatous and filled with abscesses, Washington, 4th June; amputated in the lowest third of the femur by Assistant Surgeon W. Thomson, U. S. Army, 11th June; specimen removed by Acting Assistant Surgeon H. Gibbons, jr., 15th October, 1864; discharged, healed, 14th June, 1865.

Contributed by Assistant Surgeon W. F. Norris, U. S. Army.

See 3558, **XV.** A. B. d. 99.

See class **XXIII.** A. A.

3598. A nearly tubular sequestrum of six inches, from the stump
g. 65. of the left femur. *See figure* 98.

FIG. 98. Sequestrum of six inches, from stump of the left femur three months after amputation. *Spec.* 3598.

First Lieutenant B. F. E., "F," 2d Pennsylvania Heavy Artillery, 24: knee fractured, Petersburg, 17th June; admitted hospital, Washington, 23d; thigh amputated in the lowest third by Acting Assistant Surgeon Colton, 25th June; sequestrum removed, 27th September, 1864. Recovered.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See class **XIV.** A. B. f.

3570. A tubular sequestrum, six inches in length, from the stump of the right femur.
g. 66. Private J. R., "B," 4th Ohio, 22: knee fractured, Cold Harbor, 3d June; admitted hospital, Washington, 12th; amputated in the lowest third, 15th June; specimen removed, 11th September, 1864; recovered and discharged the service, 1865.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

2676. A heavy tubular sequestrum, six and a half inches in its greatest length, removed from the stump of the right
g. 67. femur in the middle third after gangrene.

Private H. R., "F," 13th U. S. Infantry, 30: conoidal ball fractured the lowest third, 29th December, 1862; amputated in the middle third the same day; attacked with gangrene, July, 1863; sequestrum removed, 10th February, 1864.

Contributed by Assistant Surgeon H. R. Tilton, U. S. Army.

See class **XXIII.** A. B.

3104. A heavy tubular sequestrum, seven inches in length,
g. 68. from the stump of the right femur. *See figure* 99.

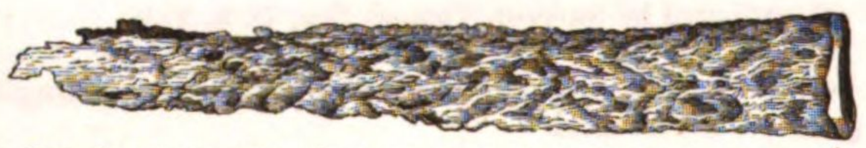

FIG. 99. Sequestrum of seven inches ten months after amputation of femur. *Spec.* 3104.

Private F. R., "D," 57th New York, 20: left arm and right thigh amputated on the field for shell fracture, Bristoe Station, Va., 14th October; admitted hospital, Alexandria, 15th October, 1863; specimen removed, 9th August, 1864, and subject convalescent. A photograph of his condition after the removal of the sequestrum stands with the specimen.

Contributed by Surgeon T. R. Spencer, U. S. Vols.

476. A tubular sequestrum, seven inches in length, and three smaller specimens, removed from the stump of the right
g. 69. femur in the lowest third nine and a half months after injury.

Case of D. W. B. M., "H," 150th New York, 20: specimen removed, 16th March; transferred to De Camp Hospital, New York Harbor, 12th August, 1865.

Contributed by Acting Assistant Surgeon S. Teats.

3100. A heavy tubular sequestrum, nearly eight inches
g. 70. in length, from the stump of the left femur. *See figure* 100.

FIG. 100. Sequestrum of seven inches, from left femur eight months after amputation. *Spec.* 3100.

Private J. G., "B," 63d New York, 22: ankle fractured and leg amputated, Cold Harbor, 3d June, 1864; specimen removed by Acting Assistant Surgeon S. Teats, New York, 19th March; recommended for discharge, 15th July, 1865.

Contributed by the operator.

See class **XVI.** A. A. e.

144. A complete tubular sequestrum, eight inches long, from the stump of the left femur.
g. 71. Private J. N., "G," 143d Pennsylvania, 21: thigh fractured, 15th May; amputated in the lowest third, about 24th May, 1864; sequestrum removed, Washington, 9th April, 1865 Recovered.

Contributed by Surgeon E. Griswold, U. S. Vols.

459. A heavy conical sequestrum, nearly five inches long, from the femur after amputation.
g. 72. Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

4281. A sequestrum of eight inches, removed from the stump of the femur in its lowest third.
g. 73. Private J. McM., "I," —— New York Cavalry: knee fractured and thigh amputated, Wilderness, 7th May; admitted hospital, Washington, 12th May; specimen removed after a lingering and critical illness, 11th August, 1864. Recovered. A photograph of the case is mounted with the specimen.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.

1581. A sequestrum of eight inches, tubular for half its length, with ten smaller fragments of necrosed bone, from the
g. 74. stump of the left femur eleven months after amputation.
Private B. McC., "K," 170th New York: amputated in the lowest third of the left femur on the field, 16th June 1864; removed by Acting Assistant Surgeon S. Teats, New York, 21st May, 1865.
Contributed by the operator.

171. A heavy sequestrum, eight and a half inches in length, of which four inches is tubular, removed from the stump
g. 75. of the lowest third of the femur two months after amputation.
Corporal H. S., "H," 64th New York, 30: near Petersburg, 25th March; admitted hospital, Washington, 2d April; thigh amputated soon afterward; sequestrum removed, 19th June; discharged, 25th September, 1865.
Contributed by Assistant Surgeon H. Allen, U. S. Army.
See 2283, **XXV.** A B. b. 144.

1853. A tubular sequestrum, ten inches in
g. 76. length, from the left femur. *See figure* 101.
Corporal H. H. E., "I," 16th New York, 23: knee fractured, Second Fredericksburg, 3d May; admitted hospital, Washington, 8th; amputated in the lowest third of the thigh by Acting Assistant Surgeon J. E. Smith, 13th; secondary hæmorrhage, 20th–21st May, when the femoral was tied in Scarpa's triangle; subject became much reduced, and sequestrum, being loose, was removed, 9th August; convalescence rapidly followed, new bone forming and the stump retaining its length; discharged the service, 26th October, 1863; reported himself in good health, December, 1864.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.
See 1852, **XIV.** A. B. f. 73; 4627, **XXVI.** A. 1, 7.

9⅞ inches

FIG. 101. Sequestrum successfully removed from left femur four months after amputation. *Spec.* 1853.

1102. A heavy irregular sequestrum, nearly four inches in length, with two fragments, representing, in one part, the
g. 77. entire shaft, removed without destroying the continuity of the bone.
Private G. W., "E," 87th Pennsylvania: femur fractured in the upper third, Petersburg, 23d June; admitted hospital, Washington, 4th July, 1864; appeared healed, with two and a half inches shortening; wound opened again and specimen removed with mallet and chisel, 30th June, 1865. Recovered speedily.
Contributed by Surgeon B. B. Wilson, U. S. Vols.

2926. A sequestrum and involucrum entire, an inch and a half in length, removed from the stump of the left femur.
g. 78. Private J. K., "G," 2d U. S. Artillery, 21: knee fractured by shell and thigh amputated in middle third, Cold Harbor, 31st May; admitted hospital, Washington, 8th June; specimen removed, 31st July, 1864. Recovered. A large abscess had formed around the bone.
Contributed by Assistant Surgeon Alex. Ingram, U. S. Army.

1094. A tubular sequestrum, three inches in length, surrounded by a cylindrical involucrum of spongy bone, from the
g. 79. stump of a femur removed for protrusion and constitutional disturbance.
Private J. M., "C," 18th Kentucky, 28: knee fractured and thigh amputated in the lowest third, Richmond, Ky., 30th August; admitted hospital, Cincinnati, 15th October, 1862; specimen removed by Acting Assistant Surgeon O. D. Morton, 15th January, 1863. Recovered.
Contributed by Acting Assistant Surgeon J. B. Smith
See class **XIV.** A. A. e.

2602. An involucrum of three inches and a sequestrum of seven inches length, removed three months after amputation.
g. 80. Private W. V., "D," 4th Pennsylvania Cavalry: shot through the right knee, Upperville, Va., 21st June; admitted hospital, Washington, the same day; femur amputated in the lowest third, 7th July; transferred to Philadelphia, 3d October; specimen removed, by sawing four inches from the extremity of the protruding bone and extracting the remainder of the sequestrum, by Acting Assistant Surgeon C. B. King, 5th October, 1863. Recovered.
Contributed by the operator.
See 1529, **XXV.** A. B. b. 152.
See class **XIV.** A. B.

3226. Four and a half inches of the stump of the femur, a tubular sequestrum weighing two ounces and ten grains troy
g. 81. and being six inches in length, and a smaller sequestrum of one inch by two. The stump, which is the involucrum that contained the greater sequestrum, is very firm, but is carious internally.

Private D. S. W., "F," 117th New York, 23: right knee shattered, Fort Harrison, Va., 29th September; amputated in the middle third by a Rebel Surgeon, 30th September, 1864; the smaller sequestrum was removed, 10th March; the greater sequestrum was removed, and the stump sawn off by Assistant Surgeon J. H. Armsby, U. S. Vols., Albany, 26th September; secondary hæmorrhage, 3d November; transferred to Albany City Hospital, 27th November, 1865.

Contributed by the operator.

See class **XIV.** A. A. e.

3141. The stump of the left femur exceedingly hyperostosed, measuring three and a half inches in diameter at the
g. 82. extremity. The specimen is four and a half inches in length and exhibits a prodigious involucrum. The extremity and central portions are carious, and a slight sequestrum is contained.

Corporal L. C. G., "D," 8th North Carolina (Rebel): knee wounded by shell, Winchester, 19th July; amputated in the lowest third of the thigh by Dr. Joseph Jones, Richmond, 22d July, 1864; died, February, 1865.

Contributed by Acting Assistant Surgeon F. Schafhirt.

See class **XIV.** A. A. e.

4220. Nearly two inches of the stump of the left femur, being a thick, well-developed involucrum, beyond which a
g. 83. slender sequestrum protrudes three inches. The date at which it was removed is unknown.

Private S. S., "D," 24th Iowa, 28: tibia and fibula comminuted, Winchester, 19th September; amputated, 23d September, 1864; "returned to duty" (for muster-out), 28th July, 1865.

Contributed by Assistant Surgeon Geo. M. McGill, U. S. Army.

For other illustrations, see 2972, **XIII.** A. B. f. 34; 1007, **XIII.** A. B. f. 79.

B. Injuries not caused by Gunshot.

A. Primary conditions.
- a. Contusions and partial fractures.
- b. Impacted fractures.
- c. Ordinary fractures.
- d. Excisions.
- e. Amputated fractures.
- f. Other operations.

c. Ordinary Fractures.

1465. The shaft of the right femur obliquely fractured, with longitudinal fractures downward.
c. 1. Private M. G., "E," regiment unknown: in an attack of mania a potu, leaped from a window forty feet from the ground, Provost Barracks, Philadelphia.

Contributed by Surgeon A. C. Bournonville, U. S. Vols.

2991. The upper half of the right femur, nearly transversely fractured between the trochanters. A large portion of the
c. 2. greater trochanter is detached and a triangular fragment, two inches broad at the upper extremity and including the trochanter minor, and six inches in length, is broken off the inner surface.

Corporal H. W., "H," 13th Connecticut, 42: instantly killed by leaping, in delirium of fever, from a window fifty feet from the ground, New Orleans, 25th November, 1863. The pelvis, ribs and bones of the right arm and forearm were fractured and the liver and kidneys lacerated.

Contributed by Assistant Surgeon P. S. Conner, U. S. Army.

See 2977, **XI.** B. A. b. 1.

See classes **IV.** B. A. b.; **VI.** B. A. b.; **VIII.** B. A. b.; **XX.** B. A. a.

e. Amputated Fractures.

2122. e. 1. The lower half of the right femur, amputated for transverse fracture, with some comminution, just above the junction of the lower thirds, after having been run over by a heavily laden wagon. The soft tissues were much lacerated.

Private M. D., "K," 140th Pennsylvania, Second Corps: about 15th March; amputated the same day; died, 18th March, 1864.

Contributed by Surgeon Justin Dwinelle, 101st Pennsylvania.

B. Secondary Conditions.

- a. Contusions and partial fractures.
- b. Impacted fractures.
- c. Ordinary fractures.
- d. Excisions.
- e. Amputated fractures.
- f. Other operations.
- g. Stumps.
- h. Sequestra.

b. Impacted Fractures.

2376. b. 1. The left femur, showing a consolidated impacted fracture of the neck which has resulted in shortening of five-eighths of an inch. The right femur, from the same case, is mounted with the specimen for the sake of comparison. The fracture is partly within and partly without the capsule, and the impaction is greater anteriorly than behind, causing inversion of the foot during life. The acetabulum was not affected.

Private F. B., "C," 108th Ohio, 36: accidentally fell from a bridge, striking the left hip, April; admitted, with slight chronic dementia, Government Hospital for the Insane, Washington, 16th May, 1865; the fracture became consolidated in the course of a few weeks, and the patient died with tuberculosis, 28th January, 1866.

Contributed by Dr. F. W. Nichols, Superintendent of the Hospital.

c. Ordinary Fractures.

6. c. 1. The upper half of the left femur, exhibiting a simple fracture through the trochanteric ridge firmly united.

From an epileptic subject who died two years after the injury of the thigh. *See figure* 102.

Contributed by Acting Assistant Surgeon F. Schafhirt.

For other illustrations, see 4628, **XXVI.** A. 2, 85.

FIG. 102. Consolidated simple fracture through the trochanters. *Spec.* 6.

C. Diseases.

128. The upper extremity of the right femur, showing deformity
C. 1. of the neck simulating consolidated intracapsular fracture.

The neck is shortened and partly turned upon itself, probably the result of interstitial absorption. A longitudinal section which has been made demonstrates that there has been no fracture, although the subject, in his last illness, told his medical attendant that he had fractured his thigh by a fall several years previously. *See figures* 103, 104, 105.

From a soldier who died of chronic diarrhœa, Louisville, Ky.
Contributed by Assistant Surgeon B. E. Fryer, U. S. Army.

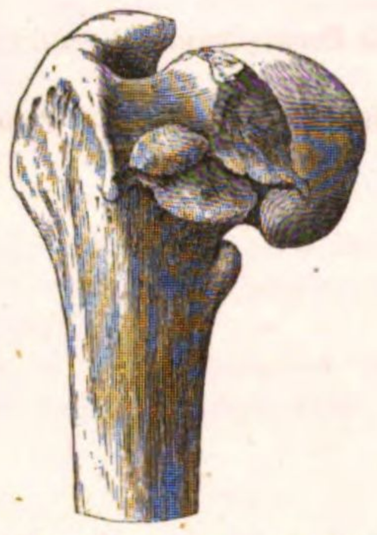

FIG. 103. Anterior view of neck of right femur after disease simulating fracture. *Spec.* 128.

FIG. 104. Posterior view of diseased neck of right femur simulating consolidated fracture. *Spec.* 128.

610. A cauliflower exostosis, two inches in diameter, removed
C. 2. from above the inner condyle of the femur.
Contributed by Surgeon D. P. Smith, U. S. Vols.

4046. The upper two-thirds of the left femur, exhibiting two fractures
C. 3. of the shaft with a pathological tumor between them. After the specimen was mounted it was impossible to determine the specific character of the morbid growth.

Private J. C., "E," 91st Indiana: reported as dying from osteo-sarcoma.
Contributed by Acting Assistant Surgeon F. H. Colton.

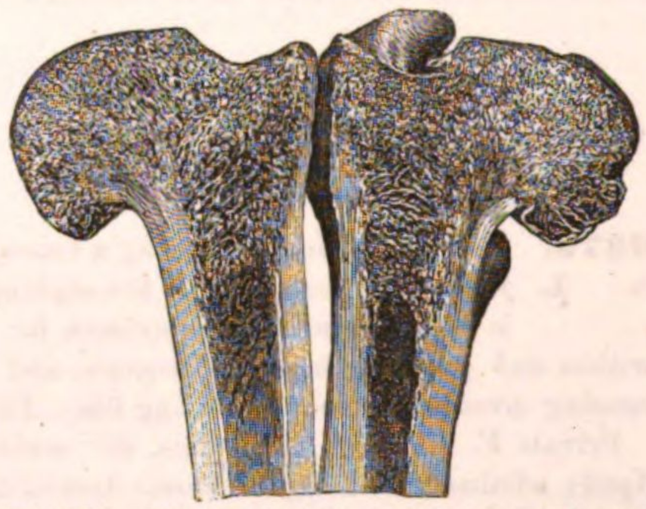

FIG. 105. Internal view of upper extremity of right femur after shortening and deformity of neck by disease. *Spec.* 128.

2979. The lower half of the left femur, from which a section has been
C. 4. cut exposing a large abscess. The shaft is thickened externally, and a sinus from the carious cavity communicates externally with the posterior surface.

W. E. Q., (Negro,) 19: subject a native of Tennessee, of tubercular diathesis, had been greatly exposed with General Sherman's Army; admitted hospital, Alexandria, 16th May; died from phthisis, 20th November, 1865.
Contributed by Surgeon E. Bentley, U. S. Vols

2738. The greater portion of the shaft of the left femur, shattered in the middle third by a round ball, which has split in
C. 5. two. The borders of the fragment show the etching of incipient necrosis; but the special feature of the specimen is an osteo-tumor in its upper portion, three by four inches in its greatest dimensions, whose principal attachment is on the posterior surface and which has grown forward, embracing the shaft. It presents such an appearance as might follow the moulding of a quantity of soft bone to the shaft.

The history does not bear upon its cause or course.

Private E. L., "H," 37th Wisconsin, 34: Petersburg, 17th June; admitted hospital, Washington, 1st July; amputated by Assistant Surgeon Geo. A. Mursick, U. S. Vols., 3d; died of pyæmia, 9th July, 1864.
Contributed by the operator.
See classes **XIII.** A. B. d.; **XXVII.** B. B. d.

4556. The lower half of the left femur, amputated for disease secondarily involving the joint. A partially separated
C. 6. sequestrum occupies the lower four inches of the posterior portion of the specimen. This is bordered longitudinally on both sides and is overhung at the superior portion by fragile and foliaceous new bone formation. The extremity of the diaphysis, which is covered anteriorly with the same new formation, is carious in its totality. The integrity of the articular surface has not been violated. No assignable cause was discovered for the disease.

C. M., (colored.) 14: of scrofulous diathesis, under treatment two months; amputated by Surgeon R. Reyburn, U. S. Vols., Washington, 30th September, 1866. Convalescent when contributed.
Contributed by the operator.
See classes **XIV.** B. B. g.; **XIV.** C.

738. The upper portions of each femur, exhibiting superficial caries over a space of two square inches, the result of
C. 7. long-continued pressure which produced bed sores in a case of paraplegia.

A. R, (colored,) 29: admitted hospital paraplegic, Washington, 1st July, 1865; died, 8th November, 1866. There was fatty degeneration of most of the viscera.
Contributed by Hospital Steward Algernon M. Squier, U S. Army.

For other illustrations, see 4001, **XIII.** A. A. d. 15; 3563, **XIV.** A. B f. 180; 2455, **XIV.** B. A. e. 2.

XIV. INJURIES AND DISEASES OF THE KNEE JOINT.

- **A.** Gunshot Injuries.
  - **A.** Primary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures
    - c. Excisions.
    - d. Disarticulations.
    - e. Amputations in the femur.
    - f. Other operations.
  - **B.** Secondary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Caries consecutive upon other injury than fracture of the bones of the joint.
    - d. Excisions.
    - e. Disarticulations.
    - f. Amputations in the femur.
    - g. Other operations.
    - h. Stumps.
    - i. Sequestra.
- **B.** Injuries not caused by Gunshot.
  - **A.** Primary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Excisions
    - d. Disarticulations.
    - e. Amputations in the femur.
    - f. Other operations.
  - **B.** Secondary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Dislocations.
    - d. Caries consecutive upon other injury than fracture of the bones of the joint.
    - e. Excisions.
    - f. Disarticulations.
    - g. Amputations in the femur.
    - h. Other operations.
    - i. Stumps.
    - k. Sequestra.
- **C.** Diseases.

XIV. KNEE JOINT.

A. Gunshot Injuries.

A. Primary Conditions.

- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Excisions.
- d. Disarticulations.
- e. Amputations in the femur.
- f. Other operations.

a. Contusions and Partial Fractures.

1488. The bones of the right knee, grooved in the outer condyle by a musket ball.
a. 1. Contributed by Surgeon J. H. Brinton, U. S. Vols.

1360. The lowest fourth of the left femur, with a round ball, from the outer side, firmly embedded in the centre of the
a. 2. outer condyle an inch from the surface. Slight fissures extend into the joint.
Contributed by Surgeon J. H. Brinton, U. S. Vols.
See class **XXVII.** B. b. d.

b. Complete Fractures.

3138. The lowest third of the left femur, transversely fractured three inches above the joint, complicated by comminu-
b. 1. tion and a severe longitudinal fracture extending in both directions the length of the specimen.
From before Petersburg.

1496. The lower extremity of the left femur, with the external condyle fractured by a conoidal ball, which passed
b. 2. through it, obliquely inward, from the front and lodged, opening the joint.
Contributed by Surgeon J. H. Brinton, U. S. Vols.
See class **XXVII.** B. b. d.

c. Excisions.

2030. The condyles of the right femur, excised for a fracture of the outer one,
c. 1. opening the joint, by a rough leaden canister shot. *See figure* 106.
Private A. K., "G," 76th Pennsylvania, 25: Pocotaligo, S. C., 22d October; bullet removed and lower portion of the condyles and semi-lunar cartilages excised by Surgeon R. B. Bontecou, U. S. Vols., Beaufort, S. C., 24th October; transferred North, 28th December, 1862; able to walk with a cane, and discharged the service, August, 1863.
Contributed by the operator.

Fig. 106. Condyles of right femur primarily excised. *Spec.* 2030.

d. Disarticulations.

See 3514, **XXI.** A. b. 20; 4719, **XXVI.** A. 4, 154.

e. Amputations in the Femur.

1284. A wet preparation of a patella, very badly shattered, with much loss of substance, as if by a shell.
e. 1. Sergeant J. McP., "H," 20th Connecticut: Chancellorsville; amputated on the field, 3d May, 1863. Result unknown.
Contributed by Assistant Surgeon J. A. Freeman, 13th New Jersey.

4159. The bones of the right knee, amputated just above the condyles for a fracture of the inferior third of the patella.
e. 2. Private G. B., "C," 205th Pennsylvania, 25: Petersburg, 1st April; amputated by Surgeon W. O. McDonald, U. S. Vols., City Point, 3d April, 1865.
Contributed by the operator.

2380. The lower portion of the right femur, with the inner condyle longitudinally grooved on its articular surface.
e. 3. Private C. W., "A," —— New York Heavy Artillery, 20: wounded and amputated in the lowest third, Cold Harbor, 5th June; admitted hospital, Washington, 11th June; died, 1st August, 1864.
Contributed by Surgeon F. F. Burmeister, 69th Pennsylvania.

3936. The lowest fourth of the right femur, with a conoidal pistol ball lodged beneath the patella, very slightly fracturing the face of the outer condyle.
e. 4. Private W. F., "C," 1st Potomac Home Brigade Cavalry: accidentally, Frederick, 1st March; amputated by Acting Assistant Surgeon Adams, 2d March; discharged, 27th May, 1864.
Contributed by Assistant Surgeon R. F. Weir, U. S. Army.
See class **XXVII.** B. B. d.

2096. A ligamentous preparation of the bones of the right leg, amputated in the lowest third of the femur for a partial
e. 5. fracture of the outer condyle and tuberosity at their outer angle.
Contributed by Assistant Surgeon W. Moss, U. S. Vols.

3914. The lowest third of the right femur, with a conoidal pistol ball embedded in the inner condyle, from which a
e. 6. fracture extends into the joint.
Private W. R., "H," 2d U. S. Cavalry, 22: Frederick, 14th September; amputated, 15th September, 1864. Recovered.
Contributed by Acting Assistant Surgeon W. B. McCausland.
See 1574, **XXV.** A. B. b. 121.
See class **XXVII.** B. B. d.

2459. The lowest third of the right femur, grooved, probably by a musket ball, across the base, involving the upper
e. 7. anterior border of the condyles.
A field amputation from Fredericksburg.

3935. The lowest third of the right femur, grooved along the anterior base, involving the upper border of the condyles,
e. 8. by a conoidal ball.
Private T. A. G., "F," 151st New York, 26: Monocacy Junction, Md., 9th July; amputated in the lowest third, Frederick, 10th July; died from exhaustion, 4th August, 1864.
Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

2041. The lowest third of the left femur, obliquely perforated by a pistol ball through the external condyle. A
e. 9. perpendicular fracture extends into the joint and longitudinal fissures run up the shaft three and four inches.
Private J. T., "E," 1st Delaware: Morton's Ford, Va., 6th February; amputated by Surgeon J. Dwinelle, 106th Pennsylvania, in the field, 8th February, 1864. Died.
Contributed by the operator.

1746. The lowest fourth of the left femur, primarily amputated by Assistant Surgeon J. T. Calhoun, U. S. Army, for
e. 10. fracture of the inner condyle by a conoidal ball, which is mounted against the same.
Contributed by the operator.
See class **XXVII.** B. B. d.

3218. The lowest fourth of the left femur. The inner condyle is fractured on the articular surface by a conoidal ball
e. 11. grooving it, with much loss of substance, from before backward.
Corporal W. H. M., "G," 5th Michigan, 19: Petersburg, 16th June; amputated by Surgeon Henry F. Lyster, 5th Michigan, 17th June, 1864; discharged the service, 9th November, 1865.
Contributed by the operator.

105. The bones of the left knee, fractured by a round ball that split the patella and lodged, battered, in the inner
e. 12. condyle. From a field amputation at Antietam.
Contributed by Surgeon J. H. Brinton, U. S. Vols.
See class **XXVII.** B. B. d.

2151. The lowest fourth of the left femur, fractured by a conoidal ball which entered the articulation from the front,
e. 13. chipped the inner surface of the external condyle and lodged anteriorly to the intercondyloid notch.
Corporal R., 5th U. S. Cavalry: near Charlottesville, Va., 1st March, 1864; amputated by Assistant Surgeon J. W. Williams, U. S. Army, the same day; died from tetanus the fourteenth day.
Contributed by the operator.

3228. The lowest fourth of the left femur, perforated obliquely upward by a round ball which
e. 14. entered the posterior portion of the articular surface and escaped anteriorly over the inner condyle. An oblique fracture exists on the posterior portion of the shaft. Primary amputation was probably performed. *See figure* 107.

From in front of Petersburg.

See class **XXVII.** B. B. d.

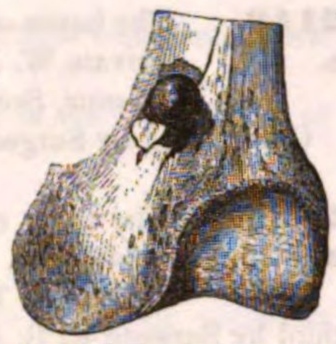

FIG. 107. Lower extremity of left femur, showing round ball, which perforated from below, lodged. *Spec.* 3228.

4155. The lowest third of the right femur, comminuted by gunshot, with a very slight fracture
e. 15. into the joint.

Private G. S. H., "F," 7th South Carolina (Rebel): amputated and contributed by Surgeon J. F. Hutchins, 10th Pennsylvania.

3924. The lowest fourth of the left femur, obliquely fractured just above the joint, with a small conoidal pistol ball
e. 16. lodged in the anterior surface. This bullet is reported to have entered near the tuberosity of the tibia, passed through the joint and lodged, while in the act of escaping, above and between the condyles. The missile has rotated upon its long axis and presents its base to view. A more probable hypothesis is that the pistol ball as seen is a second and independent missile partly penetrating.

Private J. W. L., "C," 14th New Jersey: Frederick Junction, 9th July: amputated, 10th July; furloughed, nearly recovered, 7th October, 1864.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

See 2306, **XXV.** A. B. b. 123.

See class **XXVII.** B. B. d.

1862. The bones of the right knee, primarily amputated near the middle of the lowest third by Assistant Surgeon J. T.
e. 17. Calhoun, U. S. Army, for fracture of the inner condyle by a conoidal ball which has lodged in the articulation at that point.

Contributed by the operator.

See class **XXVII.** B. B. d.

4112. The bones of the right knee, with the inner tuberosity of the tibia laterally grooved on its summit. A fracture
e. 18. extends three inches down the shaft.

Private P. McC., 5th New Jersey Battery: amputated by Surgeon H. F. Lyster, 5th Michigan, 14th September, 1864. Recovered.

Contributed by the operator.

3997. The extremities of the right tibia and fibula, with the knee fractured by a ball which deeply ploughed the head of
e. 19. the tibia from front to rear.

Private J. A, "F," 200th Pennsylvania: Petersburg, 23d March, 1865; amputated in the field by Dr. Hunter.

Contributed by Assistant Surgeon S. Adams, U. S. Army.

4010. The upper extremity of the left tibia, vertically fractured, with loss of substance, through the head by a conoidal
e. 20. ball.

Supposed to be Lieutenant C. C. K., "C," 49th North Carolina (Rebel): Petersburg; amputated in the lowest third of the femur by Surgeon Kimball, 31st Maine, 1st April, 1865.

Contributed by Assistant Surgeon S. Adams, U. S. Army.

1383. A ligamentous preparation of the right knee, except the patella, which was fractured by a conoidal ball that had
e. 21. shattered the left knee.

Private I. W., "I," 5th U. S. Artillery: Gettysburg; both thighs amputated by Assistant Surgeon B. Howard, U. S. Army, on the third day; died, 2d August, 1863.

Contributed by the operator.

See 1384, **XIV.** A. A. e. 22.

1384. The bones of the left knee, with the condyles of the femur completely shattered by a conoidal ball which passed
e. 22. transversely through them and fractured the right patella.

Private I. W., "I," 5th U. S. Artillery: Gettysburg; both thighs amputated by Assistant Surgeon B. Howard, U. S. Army, on the third day; died, 2d August, 1863.

Contributed by the operator.

See 1383, **XIV.** A. A. e. 21.

1144. The bones of the right knee, with a conoidal ball, which chipped the left patella without opening the joint, lodged
e. 23. in the inner condyle, which it has shattered.

Corporal G. W. S., "A," 14th New York State Militia, (Brooklyn,) 18: near Fredericksburg, 29th April; amputated by Surgeon R. B. Browne, Pennsylvania Volunteers, 30th April; captured and a prisoner in Richmond for a month; paroled, sent to Annapolis, and ultimately discharged the service, 1863; reported well, 15th June, 1864. The left knee healed without suppuration.

Contributed by the operator.

See class **XXVII.** B. B. d.

2118. The bones of the right knee, slightly fractured at the inferior border of the internal condyle by a conoidal ball.
e. 24. Private W. J. R. "G," 39th New York: Morton's Ford, Va., 6th February; amputated in the middle third of the femur, Second Corps Hospital, 9th February; died of tetanus, 1st March, 1864.
Contributed by Surgeon J. Dwinelle, 106th Pennsylvania.

2031. The upper extremities of the bones of the left leg. The head of the tibia is fractured on its inner aspect by a
e. 25. conoidal ball, involving the articulation.
Private R. T. W., "A," 76th Pennsylvania, 33: Pocotaligo, S. C., 22d October; thigh amputated in the lowest third by Surgeon R. B. Bontecou, U. S. Vols., Beaufort, S. C., 24th October; sent North, quite well, 28th December, 1862.
Contributed by the operator.
See 3018, **XXV.** A. B. b. 111.

3832. The lower extremity of the left femur, with the inner condyle superficially fractured by a fragment of shell.
e. 26. Private J. O. B., "E," 138th Pennsylvania: Monocacy, 9th July; amputated in the lowest third, Frederick, 11th July; died, 1st September, 1864.
Contributed by Acting Assistant Surgeon W. S. Adams.

3842. The lowest fourth of the right femur, amputated on account of fracture of the articular face of the inner condyle
e. 27. by a conoidal ball perforating the joint.
Corporal J. H., "C," 110th Ohio, 27: Monocacy Junction, Md., 9th July; amputated, Frederick, 13th July; died, 11th August, 1864.
Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

4131. The bones of the left knee, with the patella badly fractured.
e. 28. Private P. S. T., "H," 205th Pennsylvania, 20: Petersburg, 10th March; amputated in the lowest third by Assistant Surgeon W. Carroll, U. S. Vols., in the field, 14th March, 1865.
Contributed by the operator.

4122. The bones of the left knee, with the patella shattered and the outer condyle and head of tibia fractured by a
e. 29. conoidal ball, which lodged.
Private J. K., "E," 57th Pennsylvania: amputated in the lowest third of the thigh by Surgeon O. Evarts, 20th Indiana, in the field, Va., 2d October, 1864.
Contributed by the operator.
See class **XXVII.** B. B. d.

4015. The bones of the left knee with the patella and outer condyle badly fractured.
e. 30. Supposed to be Sergeant S. D. P., "D," 44th Virginia (Rebel): Petersburg; amputated in the lowest third of the thigh, in the field, by Surgeon Roche, 35th Massachusetts, 25th March.
Contributed by Assistant Surgeon S. Adams, U. S. Army.

2842. The bones of the left knee, with the patella split and the internal condyle laterally grooved on its inferior surface.
e. 31. Corporal T. C. T., "C," 12th Georgia, (Rebel,) 29: before Washington; amputated in the lowest third by Assistant Surgeon J. C. McKee, U. S. Army, 14th July; died from exhaustion, 26th December, 1864.
Contributed by Acting Assistant Surgeon T. L. Leavitt.

4136. The upper portions of the bones of the right leg, with the outer tuberosity of the tibia fractured by a conoidal ball,
e. 32. of which a fragment remains in place.
Corporal S. S., "F," 200th Pennsylvania, 23: Petersburg, 25th March; amputated above the condyles by Surgeon W. O. McDonald, U. S. Vols., City Point, Va., 29th March, 1865.
Contributed by the operator.
See class **XXVII.** B. B. d.

4132. The lowest third of the left femur, with the inner condyle fractured so that much of the cancellated structure is
e. 33. exposed.
Private D. R., "K," 208th Pennsylvania, 25: Petersburg, 25th March; amputated in the lowest third by Assistant Surgeon W. Carroll, U. S. Vols., 26th March, 1865. Recovered.
Contributed by the operator.

2344. The upper portions of the bones of the left leg. The greater portion of the inner tuberosity of the tibia has been
e. 34. split off obliquely.
Private C. B., "C," 39th New York, 26: Bristoe Station, 14th October; amputated in the lowest third of the femur, 16th October, 1863; sequestrum removed, 20th February, 1864; discharged the service, 20th September, 1865.
Contributed by Surgeon —— Bond.
See 3027, **XIII.** A. B. g. 42; 1787, **XXV.** A. B. b. 93.

4135. The upper extremities of the bones of the left leg, with a conoidal ball, which has perforated from within and below
e. 35. and splintered the head of the tibia, resting on the articulation.

Private T. J. F., "H," 57th Massachusetts, 26: near Petersburg, 25th March; amputated in the lowest third of the thigh by Surgeon W. O. McDonald, U. S. Vols., 28th March, 1865.

Contributed by the operator.

See class **XXVII.** B. B. d.

1621. The upper extremities of the bones of the right leg, with the head of the tibia shattered by being obliquely
e. 36. perforated from without by a musket ball.

Lieutenant D. L., "B," 30th Iowa: Vicksburg, 22d May; amputated on Hospital Steamer "City of Memphis" by Assistant Surgeon H. M. Sprague, U. S. Army, 24th May, 1863.

Contributed by the operator.

2856. The bones of the left knee, with the outer condyle fractured by a conoidal ball which is impacted in the head of
e. 37. the tibia.

Private J. T. M., "G," 45th North Carolina, (Rebel,) 20: admitted hospital, Washington, 14th July; amputated in the lowest third, probably primarily; died, 19th August, 1864.

Contributed by Acting Assistant Surgeon T. L. Leavitt.

See class **XXVII.** B. B. d.

138. The upper portions of the bones of the left leg, showing the inner tuberosity of the tibia shattered.

e. 38. Private C. H. W., "G," 14th New York State Militia (Brooklyn): 2d Bull Run, 30th August; amputated in the lowest third of the thigh by Acting Assistant Surgeon J. Nichols, Washington, 2d September; died, 6th September, 1862.

Contributed by the operator.

1765. A ligamentous preparation of the left knee, fractured by the passage of a bullet through the outer condyle and
e. 39. outer tuberosity of the tibia.

Major T., 2d Pennsylvania Cavalry, 32: Bealton Station, 22d October; amputated in the lowest third of the thigh by Surgeon Wadman, 2d Pennsylvania Cavalry, 23d October; reacted well, but died suddenly, as in a convulsion, 24th October, 1863.

Contributed by Assistant Surgeon G. M. McGill, U. S. Army.

4116. The bones of the left knee, with the anterior face of the inner tuberosity of the tibia fractured. A primary
e. 40. amputation.

Private R. E., "E," 86th New York: amputated above the condyles by Surgeon H. F. Lyster, 5th Michigan, 1864. Died en route from the field to City Point.

Received from the Army of the Potomac.

3784. The extremities of the femur and tibia of the right knee. The outer condyle of the femur is much shattered by
e. 41. a conoidal ball.

Captain J. B., "A," 121st New York: Cedar Creek, 19th October; amputated in the lowest third, Winchester, 22d October, 1864.

Contributed by Assistant Surgeon W. G. Bryant, 122d Ohio.

4020. The lowest third of the right femur, amputated for fracture from a ball entering the popliteal space and passing
e. 42. through the knee. The cancellated tissue was perforated by the bullet. Longitudinal fractures ascend the shaft to enter a transverse oblique fracture four inches above the articulation.

Private W. H. G., "G," 44th Virginia (Rebel): Petersburg; amputated in the field, 1st April, 1865.

Contributed by Assistant Surgeon S. Adams, U. S. Army.

2879. The patella chipped and the right femur perforated directly between the condyles by a conoidal ball which split
e. 43. them and obliquely fractured the shaft.

Private N. J. W., "C," 43d North Carolina, (Rebel,) 30: before Washington, 14th July; amputated in the lowest third by Surgeon A. F. Sheldon, U. S. Vols., Washington, 17th July, 1864.

Contributed by the operator.

4134. The bones of the right knee, with the inner condyle and the head of the tibia fractured by gunshot. The missile
e. 44. passed transversely.

Sergeant A. M., "K." 200th Pennsylvania: Petersburg, 25th March; amputated above the condyles by Surgeon W. O. McDonald, U. S. Vols., City Point, 27th March, 1865.

Contributed by the operator.

1382. A ligamentous preparation of the bones of the right knee. A conoidal ball from the front grooved the inner
e. 45. tuberosity of the tibia and shattered the inner condyle of the femur.

First Lieutenant M. F. W., "I," 5th U. S Artillery: Gettysburg, 2d July; amputated in the lowest third of the femur by Assistant Surgeon B. Howard, U S. Army, 3d July, 1863. Recovered.

Contributed by the operator.

3993. The lower extremity of the left femur, with the outer condyle shattered by a small conoidal ball, which has lodged.
e. 46. Believed to be the case of Captain J. McC., 4th Georgia (Rebel): femur and tibia fractured near Petersburg; amputated in the lowest third of thigh by Dr. Smyser, 1st April, 1865.

Contributed by Assistant Surgeon S. Adams, U. S. Army.

See class **XXVII.** B. B. d.

1624. The bones of the left knee, with the patella extremely shattered and the posterior portion of the outer condyle
e. 47. split off.

Private W. B., "C," 116th Illinois: Vicksburg, 22d May; amputated in the lowest third, 26th May, 1863.

Contributed by Assistant Surgeon H. M. Sprague, U. S. Army.

1677. A ligamentous preparation of the bones of the left knee, with the patella and inner condyle badly torn up by a
e. 48. grape shot.

Private R. C., "F," 8th Illinois Cavalry: Culpeper, Va., 1st August; amputated in the lowest third by Acting Assistant Surgeon Carlos Carvallo, Washington, 3d; died, 20th August, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

4383. The bones of the right knee, with the condyles split by a Colt's pistol ball, which obliquely perforated the shaft
e. 49. of the femur. The missile lodged with its head entering the joint.

Private J. P., "B," 1st California Cavalry: accidentally, Fort Marcy, N. M., 29th July; amputated in the lowest third by Assistant Surgeon H. E Brown, U. S. Army, 30th July, 1865. Completely recovered.

Contributed by the operator.

See class **XXVII.** B. B. d.

3995. The bones of the right knee, fractured by a perforating shot through the patella which vertically split the head
e. 50. of the tibia.

Supposed to be Private I. H., "D," 56th North Carolina (Rebel): Petersburg; amputated in the lowest third, in the field, by Surgeon Oakes, 56th Massachusetts, 25th March, 1865.

Contributed by Assistant Surgeon S. Adams, U. S. Army.

1622. A ligamentous preparation of the right knee joint, of which the inner condyle is perforated and fractured by a
e. 51. musket shot entering from behind.

Corporal S. A. McC., "A," 47th Illinois: Vicksburg, 22d May; amputated by Assistant Surgeon H. M. Sprague, U. S. Army, Hospital Steamer "City of Memphis," 24th May, 1863.

Contributed by the operator.

1535. A ligamentous preparation of the bones of the left knee, with the inner condyle split off by a bullet lodging
e. 52. therein. Primary amputation was probably performed.

Contributed by Surgeon J. H. Brinton, U. S. Vols.

1623. A ligamentous preparation of the right knee, with the internal border of the patella chipped and the inner condyle
e. 53. fractured by a bullet passing from front to rear.

Lieutenant H. J. D., "K," 30th Ohio, 22: Vicksburg, 22d May; amputated in the lowest third of the femur by Assistant Surgeon H. M. Sprague, U. S. Army, on Hospital Steamer "City of Memphis," 24th May, 1863. Result unknown.

Contributed by the operator.

48. The bones of the left knee, with the outer condyle separated from its fellow and destroyed by a ball entering
e. 54. the front and passing through the base of the femur obliquely upward.

Private G., "K," 46th Pennsylvania: Cedar Mountain, 9th August; amputated in the lowest third of the femur by Surgeon J. E. Summers, U. S. Army, Alexandria, 13th August; died, 15th September, 1862.

Contributed by the operator.

3938. The lower extremity of the right femur, from which the inner condyle is split off by a conoidal ball.
e. 55. Private B. A., "A," 151st New York, 21: Monocacy Junction, Md., 9th July; amputated in the lowest third, 11th July; transferred to Baltimore, nearly recovered, 23d August, 1864.

Contributed by Assistant Surgeon R F. Weir, U. S. Army.

3998. The lower extremity of the left femur, with fragments of the patella. The patella was fractured by a piece
e. 56. of shell, which also destroyed the right knee, rendering double amputation necessary.

Private C. I. R., "C," 21st North Carolina (Rebel): near Petersburg; double amputation in the field by Dr. Bliss, 1st April, 1865.

Contributed by Assistant Surgeon S. Adams, U. S. Army.

1120. The lower half of the right femur, with comminution of the condyles and of the shaft above the articulation,
e. 57. together with longitudinal fissuring.

Private C. C., "I," 6th Wisconsin: amputated near Fredericksburg by Surgeon J. Ebersoll, 19th Indiana.

Contributed by Surgeon E. Shippen, U. S. Vols.

3897. The lower portion of the right femur, with the outer condyle broken off by a conoidal ball entering from the front.
e. 58. Private J. G., "B," 6th Pennsylvania, 19: Gettysburg, 3d July; amputated in the lowest third, 5th July; healed and discharged the service, 21st September, 1864.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

2262. The extremities of the left femur and tibia. The knee appears to have been perforated by a bullet, which
e. 59. fractured the articular surface of the tibia and shattered the inner condyle of the femur.

Private S. W. J., "B," 1st Massachusetts Heavy Artillery, 29: wounded and amputated in the lowest third of the thigh, Spottsylvania, 19th May; admitted hospital, Washington, 22d May; died, 1st June, 1864.

Contributed by Surgeon C. K. Irwin, 72d New York.

4117. The bones of the left knee, with the femur comminuted, with oblique fracture throughout its lowest third, and the
e. 60. patella chipped.

Private F. M., "H," 8th New Jersey: amputated in the middle third by Surgeon O. J. Evans, 40th New York, in the field, Va., 8th November, 1864.

Contributed by the operator.

4029. The extremities of the tibia and femur of the left knee, badly broken. A longitudinal fracture extends down the
e. 61. tibia on its posterior surface.

Sergeant W. R. McC., "A," 209th Pennsylvania: Petersburg; amputated in the lowest third, in the field, 25th March, 1865.

Contributed by Assistant Surgeon S. Adams, U. S. Army.

4008. The extremities of the tibia and femur of the right knee, fractured by shell and amputated in the lowest third of
e. 62. the thigh. The outer condyle is slightly grooved, but the head of the tibia is comminuted by the transverse passage of the missile.

Private J. R., "G," 207th Pennsylvania: Petersburg; amputated in the field by Dr. Hunter, 31st March, 1865.

Contributed by Assistant Surgeon S. Adams, U. S. Army.

2280. The lowest fourth of the left femur. A conoidal ball has entered between the condyles, shattering the inner one
e. 63. and obliquely fracturing the shaft.

Lieutenant J. M. L., "E," 148th Pennsylvania, 22: wounded and amputated, Wilderness, 10th May; admitted hospital, Georgetown, 14th; died, 28th May, 1864.

Contributed by Surgeon J. W. Wishart, 148th Pennsylvania.

4000. The lowest third of the right femur, amputated for a shell fracture by which the knee is badly shattered.
e. 64. Private W. T. R., "I," 2d Alabama (Rebel): Petersburg; amputated in the field by Dr. Oakes, 1st April, 1865.

Contributed by Assistant Surgeon S. Adams, U. S. Army.

3996. The lowest third of the right femur, amputated for a fracture of the knee from a transverse perforation of both
e. 65. condyles by a conoidal ball.

Supposed to be Private W. H. McB., "B," 44th Virginia (Rebel): Petersburg; amputated by Dr. Hunter, in the field, 31st March, 1865.

Contributed by Assistant Surgeon S. Adams, U. S. Army.

3244. The upper portions of the bones of the right leg, with the tibia, especially in its head, badly comminuted by shell.
e. 66. Private H. P., "A," 1st New Hampshire Heavy Artillery: accidentally wounded, Fort Slocum, and admitted hospital, Washington, 14th September; amputated in the lowest third of the thigh by Surgeon R. B. Bontecou, U. S. Vols., the same day; transferred North doing well, 17th May, 1865.

Contributed by the operator.

3857. The bones of the right knee, with the lowest third and outer condyle of the femur, the head of the fibula and the
e. 67. outer tuberosity of the tibia shattered and the outer border of the patella chipped by a conoidal ball.

Private W. B., "A," 14th New Jersey: Monocacy Junction, Md., 9th July; amputated in the lowest third of the femur and died, Frederick, 11th July, 1864.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

2045. The bones of the right knee, with the femur badly shattered and the outer tuberosity of the tibia chipped by a
e. 68. fragment of shell (attached).

Private B. K. T., "G," 196th New York: Morton's Ford, 6th February; amputated in the lowest third by Surgeon J. Dwinelle, 106th Pennsylvania, 9th February, 1864 Died of pyæmia.

Contributed by the operator.

See class **XXVII.** B. A. c.

2315. The lowest third of the right femur. The superior portion of the inner condyle and adjoining part of the shaft of
e. 69. the femur have been completely carried away by a conoidal ball.

Lieutenant Colonel J. W., 43d New York: amputated at the junction of the lowest thirds, fifteen hours after injury, by Surgeon J. Ebersoll, 19th Indiana.

Contributed by Surgeon C. H. Chamberlain, U. S. Vols.

2656. The condyles of the right femur, with a conoidal ball which entered the external anterior aspect, destroying
e. 70. the joint.

Private P. B., "I," 28th Massachusetts: Cold Harbor, 4th June; amputated through the junction of the shaft and epiphysis by Assistant Surgeon S. B. Ward, U. S. Vols., Alexandria, 8th; died of gangrene and secondary hæmorrhage, 16th June.

Contributed by the operator.

See classes **XXIII.** A. B.; **XXVII.** B. B. d.

4121. The upper portion of the left tibia, comminuted by a fragment of the base of a shell,
e. 71. which is attached. *See figure* 108.

Private C. H. M., "F," 1st Maine Heavy Artillery: amputated in the lowest third of the thigh by Surgeon J. S. Jamison, 86th New York, 2d October; died from exhaustion, 27th October, 1864.

Contributed by the operator.

See class **XXVII.** B. A. c.

FIG. 108. Upper extremity of left tibia shattered by base of shell. *Spec.* 4121.

4039. The bones of the left knee, in which the outer angle of the patella is grazed, the outer
e. 72. condyle shattered and the head of the tibia fractured by a conoidal ball. The interesting feature in this specimen is a nearly transverse fracture of the shaft of the femur, about two inches above and connected only by a slight fissure with that immediately caused by the ball, affording an excellent example of the effect of indirect violence. The wound was inflicted at very close range, in a charge upon our pickets, and its peculiar character seems due to the great momentum of the missile.

Private C. M., "D," 48th North Carolina (Rebel): Hatcher's Run, Va.; amputated, an hour after the injury, in the lowest third by Acting Staff Surgeon T. H. Squire, 1st April, 1865.

Contributed by the operator.

See class **XXVII.** B. B. d.

1495. A wet preparation of the left knee. The external condyle of the femur is slightly abraded on its articular face
e. 73. and the internal tuberosity of the tibia completely shattered, apparently by a conoidal ball passing obliquely through the joint. Amputation just above the knee was performed primarily.

Contributed, without history, by Surgeon J. H. Brinton, U. S. Vols.

3766. The bones of the left knee, with the patella, outer condyle and tuberosity chipped, and amputated apparently
e. 74. primarily.

Private D. McG., "E," 88th New York: amputated by Assistant Surgeon J. S. Smith, U. S. Army, City Point, August, 1864.

Contributed by the operator.

3364. The bones of the right knee. The outer border of the patella was chipped and the outer condyle and base of the
e. 75. shaft shattered.

Private S. S. S., "K," 12th New Jersey; Cold Harbor, 3d June, 1864; primarily amputated by Surgeon F. F. Burmeister, 69th Pennsylvania.

Received from the Army of the Potomac.

3489. The bones of the left knee. The outer condyle was fractured and split off by a bullet striking anteriorly.
e. 76. Private G. T., "A," 71st Pennsylvania, 50: Cold Harbor, 3d June; amputated by Surgeon F. F. Burmeister, 69th Pennsylvania, the same day; admitted hospital, Washington, 11th June; died, 25th August, 1864.
Received from the Army of the Potomac.

1072. The lowest fourth of the right femur, with much of the inner condyle carried away by a conoidal ball.
e. 77. Private L. D., "A," 9th Virginia, 18: Halltown, Va., 25th August; admitted hospital, Frederick, 29th August; amputated in the lowest third the same day; admitted hospital, New York, 21st December, 1864.
Contributed by Acting Assistant Surgeon T. J. Dunott.

For other illustrations, see 2930, **XIII.** A. B. f. 11; 3848, **XIII.** A. B. f. 22; 482, **XIII.** A. B. f. 32; 3880, **XIII.** A. B. f. 33; 2972, **XIII.** A. B f. 34; 108, **XIII.** A. B. g. 32; 1971, **XIII.** A. B. g. 49; 1094, **XIII.** A. B. g. 79; 3226, **XIII.** A. B. g. 81; 3141, **XIII.** A. B. g. 82; 4629, **XXVI.** A. 3, 132, 133, 134; 4719, **XXVI.** A. 4, 154, 160.

f. Other Operations.

2261. A large fragment of the right patella, probably removed on the field. The outer condyle was also fractured.
f. 1. Captain S. W. D, "B," 1st Maine Heavy Artillery, 32: Petersburg, 18th June; specimen probably removed at Second Corps Field Hospital; admitted hospital, New York Harbor, 26th; amputated in the lowest third of the femur by Assistant Surgeon Warren Webster, U. S. Army, 27th June; died, 1st July, 1864.
Contributed by Dr. Garcelon.
See class **XIV.** A. B. f.

For other illustrations, see 4199, **XIV.** A. B. f. 23.

B. Secondary Conditions.

a. Contusions and partial fractures.
b. Complete fractures.
c. Caries consecutive upon other injury than fracture of the bones of the joint.
d. Excisions.
e. Disarticulations.
f. Amputations in the femur.
g. Other operations
h. Stumps.
i. Sequestra.

a. Contusions and Partial Fractures.

1339. The left knee, entered on the outer edge of the patella by a pistol ball which opened the joint and grazed the
a. 1. head of the tibia.
Private G. W. P., "G," 1st Massachusetts Cavalry, 22: Brandy Station, 9th June; admitted hospital, Washington, 12th June; attempt made to save the limb by making free incisions with the view to prevent abscesses of the thigh; died from secondary hæmorrhage from ulceration of the posterior tibial artery, (due possibly to scorbutic taint,) 1st July, 1863. (The mode of treatment appeared successful, and the result may be considered accidental.)
Contributed by Assistant Surgeon W. Thomson, U. S. Army.

2134. The bones of the right knee. The external condyle is grooved by a bullet which passed
a. 2. out at the posterior part of the joint. The articular surfaces are eroded. If freer openings "had been made along the track [for the escape of pus] it is believed the case might have been saved." *See figure* 109.
Private J. B., "K," 42d Indiana: Chickamauga, 20th September; treated at Chattanooga until 12th December, when he was transferred to Murfreesboro', "an exhaustive and painful journey, and from which he did not rally;" died, 12th December, 1863.
Contributed by Surgeon I. Moses, U. S. Vols.

Fig. 109. Right knee partially fractured above outer condyle. *Spec.* 2134.

3564. The lower half of the right femur, perforated from the front above the condyles, with an
a. 3. oblique fracture up the shaft and a longitudinal fissure into the joint.
Private H. C. McK., "B," 11th Virginia, (Rebel,) 23: wounded, 27th May; admitted hospital, Washington, 12th June; died from pyæmia, 17th June, 1864.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.

3643. The lowest fourth of the right femur, showing a fracture of the outer condyle, followed by inflammation and
a. 4. suppuration of the joint.

Private W. J. C., "C," 19th Massachusetts: Deep Bottom Va. 16th August; died of pyæmia, Philadelphia, 22d September, 1864.

Contributed by Acting Assistant Surgeon D. Kennedy.

For other illustrations, see 3434, **XIV.** A. B. f. 2; 262, **XIV.** A. B. f. 3; 489, **XIV.** A. B. f. 14; 4418, **XXVII.** B. B. d. 160.

b. Complete Fractures.

2168. The lowest third of the left femur. The articular surface is destroyed by suppuration. A delicate longitudinal
b. 1. fissure extends four inches on the posterior surface of the shaft.

Private T. J. B., "I," 40th Illinois, 24: patella fractured and joint opened by a grape shot, Missionary Ridge, 25th November; admitted Army of the Cumberland Field Hospital, 20th December, 1863; died, 14th January, 1864.

Contributed by Acting Assistant Surgeon Chas. E. Ball.

3876. The bones of the left knee, anchylosed at an obtuse angle, with the patella firmly adherent to the outer condyle,
b. 2. following a flesh wound of the knee opening the joint.

Private G. W. B., "C," 14th Indiana, 44: Antietam, 17th September, 1862; treated in Frederick, by extension with weight and pulley; died from pleurisy, 11th May, 1863. So far as the knee is concerned, the case may be considered a success.

Contributed by Acting Assistant Surgeon A. North.

3867. The bones of the right knee, with the patella anchylosed as the effect of inflammation and deposit of new bone
b. 3. following gunshot. Much of the outer portion of the head of the tibia is wanting and the bone is carious.

Case of C. M., "D," 69th New York.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

1402. A part of the bones of the right knee, with the posterior aspect of the head of the tibia very slightly fractured
b. 4. by a canister shot, followed by extensive suppuration.

Sergeant C. M., "K," 13th New York, 33: Chancellorsville, 3d May; missile extracted, Washington, 21st May; died of exhaustion, 19th July, 1863.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

355. The bones of the right knee, perforated by a buckshot at the junction of the shaft and epiphysis of the femur,
b. 5. opening the synovial sac, and followed by ulceration of the joint and necrosis at the place of injury. An oblique fissure extends upward.

Private F. M. F., 10th Georgia (Rebel): Antietam, 17th September, 1862.

Further history and contributor unknown.

3754. The bones of the left knee. The anterior portion of the outer tuberosity of the tibia is fractured by a conoidal
b. 6. ball which penetrated the joint, and the articular surfaces are eroded by ulceration.

Private E. C. H., "F," 104th Ohio, 19: Franklin, Tenn., 30th November; admitted hospital, Nashville, 1st December; limb attempted to be saved; died of pyæmia, 28th December, 1864.

Contributed by Acting Assistant Surgeon H. C. May.

3895. The left femur, grooved on the inner condyle by a conoidal ball which opened the joint. A point of ulceration
b. 7. is to be seen on its head, showing the hip joint to have been involved in an abscess that embraced the entire thigh. The much-battered bullet is mounted at the point of impact.

W. R. W., 1st South Carolina Rifles, (Rebel,) 21: Falling Waters, Md., 14th July; died at Frederick, 8th August, 1863.

Contributed by Acting Assistant Surgeon W. S. Adams.

See classes, **XII.** A. B. c.; **XXVII.** B. B. d.

4045. The upper halves of the bones of the right leg. The tibia has been perforated by a conoidal ball two inches
b. 8. below the joint, from which point longitudinal fissures extend down the shaft and into the articulation.

Private P. G : history not furnished.

Contributed by Medical Cadet E. A. Dulin.

753. The bones of the left knee. The patella is fractured and the head of the tibia involved. A carious excavation
b. 9. about the size of a bullet is observed near the tubercle of the tibia.

Private J. T., "I," 7th Michigan, 26: 17th September; conoidal bullet not extracted until 27th October, at Frederick; inflammation first occurred, 27th October; limb attempted to be saved; died, 20th November, 1862.

Contributed by Acting Assistant Surgeon Redfern Davies.

2120. A ligamentous preparation of the bones of the left knee. The patella has been perforated and the anterior face
b. 10. of the inner condyle partially fractured. A moderate new bony formation is found on the femur. The articular surfaces do not show extensive disease.

Corporal E. P., "I," 19th Massachusetts: wounded, 26th June; probably taken to Richmond; admitted hospital, Philadelphia, 30th July; died, 26th August, 1862.

Contributed by Acting Assistant Surgeon J. B. Bowen.

808. A ligamentous preparation of the bones of the left knee, with the external condyle partially fractured by a ball
b. 11. which entered below the patella and passed through the joint obliquely upward. The articulation is eroded.

Private J. C. D., 5th Florida, (Rebel,) 35: Antietam, 17th September; admitted hospital, Frederick, 29th September; amputation deferred in the hope of improved condition; died, 26th October, 1862.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

1792. The condyles of the right femur and the patella. The latter bone is fractured longitudinally.
b. 12. Sergeant J. R. F., "B," 14th Pennsylvania Cavalry.

Contributed by Surgeon B. Beust, U. S. Vols.

3999. The upper portion of the left tibia and the patella, with a conoidal bullet. The tibia is chipped on its anterior
b. 13. surface, involving the joint. There is no attempt at repair.

Private A. G., "H," 95th New York, 54: probably Petersburg, about 1st April; admitted hospital, Washington, 1st; died, 18th April, 1865.

Contributed by Brevet Captain W. F. Norris, Assistant Surgeon, U. S Army.

See class **XXVII.** B. B. d.

2314. The bones of the right knee. The outer condyle is partially fractured on the posterior surface and the articula-
b. 14. tion is destroyed by suppuration.

Private W. H. M., "C," 3d Michigan: Fair Oaks, 1st June; admitted hospital, Philadelphia, 8th June; died, 8th August, 1863.

Contributor unknown.

3380. The bones of the left knee, fractured on the outer border of the head of the tibia, with the articulation destroyed
b. 15. by suppuration. The head of the fibula was carried away.

Private J. F. L., "B," 13th Iowa, 25: Atlanta, 22d July; admitted Field Hospital, Rome, Ga., 7th August; died of exhaustion, 13th September, 1864.

Contributed by Surgeon G. F. French, U. S. Vols.

2025. A ligamentous preparation of the bones of the left knee, with the patella perforated by a conoidal ball, a fragment
b. 16. having been driven into the joint.

Private R. B., "A," 119th Pennsylvania, 23: Rappahannock Station, 7th November; admitted hospital, Washington, 9th November; died of pyæmia, 5th December, 1863.

Contributed by Surgeon R. B. Bontecou, U. S. Vols.

2561. The lowest third of the left femur, obliquely fractured to the joint, with loss of substance on the anterior surface,
b. 17. by a conoidal ball which passed through the right groin and entered the left thigh three inches above the knee.

Private W. H., "B," 184th Pennsylvania, 28: Cold Harbor, 3d June; admitted hospital, Alexandria, 7th; died from repeated secondary hæmorrhage from right femoral, 14th June, 1864.

Contributed by Acting Assistant Surgeon P. Wilson.

See 1779, **XV.** C. 2; 2562, **XVIII. II.** A. B. a. 15.

764. The upper portions of the right tibia and fibula. The outer tuberosity of the tibia and the head of the fibula
b. 18. are fractured by a musket ball, which opened the joint. Suppuration involved two-thirds of the thigh and leg at the time of death.

Private J. M., 20th New York: Antietam, 17th September; died, Frederick, 21st October, 1863.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

1945. The bones of the left knee. There is a bullet wound of the outer condyle, with fissures extending into the joint.
b. 19. A thin layer of callus envelopes the lowest portion of the femur. A portion of the inner condyle and the corresponding part of the head of the tibia were denuded of synovial membrane and partial anchylosis of the knee existed.

Private M. McL., "K," 13th Massachusetts: Gettysburg, 1st July; there was profuse suppuration and secondary hæmorrhage from a fistulous opening above the condyle; died, 9th November, 1863.

Contributed by Acting Assistant Surgeon E. P. Townsend.

3785. The bones of the right knee, with a battered conoidal ball lodged in the head of the tibia from above. The
b. 20. articular surfaces are destroyed by suppuration.

Private J. J. B., "B," 14th New Hampshire, 20: Winchester, 19th September; died from exhaustion, 4th November, 1864.

Contributed by Surgeon L. P. Wagner, 114th New York.

See class **XXVII.** B. B. d.

1950. The bones of the right knee, with a flattened conoidal ball, which comminuted and fractured the outer condyle of
b. 21. the femur, embedded in the outer tuberosity of the tibia. The bullet entered from the front, but lies in a reversed position. There is much caries of the parts involved.

Private W. F. D., "C," 13th Mississippi (Rebel): Gettysburg, 2d July; died from exhaustion, 21st September, 1863.

Contributed by Acting Assistant Surgeon E. P. Townsend.

See class **XXVII.** B. B. d.

292. The lowest third of the right femur, perforated by a musket ball transversely through the outer condyle, producing
b. 22. an oblique fracture into the joint. There is a slight deposit of callus on the borders of the fracture.

Contributed by Surgeon J. T. Hodgen, U. S. Vols.

2795. The upper extremities of the bones of the right leg, with a perforating, directly transverse fracture through the
b. 23. head of the tibia, involving the joint.

From a soldier wounded before Petersburg.

Contributed by Surgeon F. C. Lyon, U. S. Vols.

3537. The bones of the left knee, with the outer posterior border of the head of the tibia fractured by a bullet.
b. 24. Private W. H. S., "K," 14th Indiana, 24: Wilderness, 10th May; admitted hospital, Washington, 28th; died of exhaustion, 31st May, 1864. An abscess extended from the wound to the heel.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

761. A ligamentous preparation of the bones of the left knee, with the anterior face of the outer tuberosity chipped by
b. 25. a musket ball.

Private J. H., 72d Pennsylvania: Antietam, 17th September; died, Frederick, 21st October, 1862.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

3659. The upper portions of the right tibia and fibula, with the outer tuberosity of the tibia slightly fractured by
b. 26. gunshot. The articular surface is eroded by ulceration.

Private F. D., "D," 88th New York: admitted hospital, Philadelphia, 31st May; died from the effects of the wound and erysipelas, 23d June, 1864.

Contributed by Acting Assistant Surgeon M. M. Jarrett.

See class **XXIII.** A. A.

3398. The bones of the left knee, fractured in the inner condyle and head of the tibia by a musket ball. The articulation
b. 27. was destroyed by suppuration.

Corporal F. C., "A," 27th Illinois, 21: Mission Ridge, 26th November, 1863; died, Chattanooga, 23d February, 1864.

Contributed by Assistant Surgeon C. C. Byrne, U. S. Army.

3587. The bones of the right knee, with the tibia transversely perforated below the head, involving the joint.
b. 28. Private J. S., "K," 51st New York, 18: Petersburg, 30th July; died, Washington, 3d August, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

1713. The bones of the left knee, the head of the tibia being slightly injured and the patella comminuted on the lower
b. 29. border. The articular surfaces are destroyed by suppuration. One abscess extended through three-fourths of the thigh and another to the ankle.

Corporal O. S. C., "I," 19th Maine, 29: Gettysburg, 3d July; died of pyæmia, Baltimore, 31st August, 1863.

Contributed by Assistant Surgeon D C. Peters, U. S. Army.

2553. The upper extremity of the right tibia, with a longitudinal split in the outer tuberosity from an injury to the
b. 30. posterior surface.

Private R. McL., "H," 142d Pennsylvania: Spottsylvania C. H., 12th May, 1864.

Contributor and history unknown.

1069. The upper extremities of the bones of the leg, with the inner tuberosity fractured by a bullet. The same patient
b. 31. had a severe shell wound of the leg.

Private W. H., "D," 28th Pennsylvania: probably Chancellorsville, 3d May; admitted with tetanus, Armory Square Hospital, Washington, 7th May, 1863; died the same day.

Contributed by Assistant Surgeon C. C. Byrne, U. S. Army.

See 1071, **XV.** A. B. b. 14; 1070, **XXII.** A. A. a. 3; 1068, **XXII.** A. A. a. 4; 1067, **XXV.** A. B. b. 149.

3. The upper third of the left tibia, crushed in the inner tuberosity. A delicate fissure extends obliquely three inches
b. 32. down the front of the shaft.

Private P. B., "E," 9th Massachusetts: Malvern Hill, Va., 1st July; admitted hospital, Washington, 5th; attempted to save the limb; died, 12th July, 1862.

Contributed by Assistant Surgeon J. S. Billings, U. S. Army.

356. The bones of the left knee, with the inner tuberosity of the tibia perforated obliquely downward by a round ball.
b. 33. The articular surface is eroded by suppuration. The bullet is seen at the point of entrance, whither it appears to have gravitated through its own track and where the fragments are necrosed. The partial fracture of the shaft of the tibia has, in turn, been partially consolidated by effusions of callus.

Private J. W. S., 43d Alabama (Rebel): Antietam, 17th September, 1862.

Received from Greencastle, Penna.

See class **XXVII.** B. B. d.

1619. The head of the right tibia, much broken and carious on the outer surface.
b. 34. Private E. A. H., "B," 72d New York, 17: Gettysburg; died in Baltimore, 23d July, 1863.

[The ordinary extensive abscesses of such cases occurred.]

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

1653. The upper portions of both tibias, fractured into the knee joints by a conoidal ball passing directly through the
b. 35. left tibia at the tubercle and lodging in the right one. There is much loss of substance in the left tibia, with a necrosed condition of the fractured bone.

Corporal A. H. S., "F," 12th New Jersey, 22: admitted hospital, Baltimore, 13th July; died of exhaustion, 30th July, 1863. He did not rally after admission to hospital sufficiently to endure an operation.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

See class **XXVII.** B. B d.

3943. The upper half of the left tibia, perforated just below the head by a conoidal ball which fractured the inner tuber-
b. 36. osity. The articulation is eroded.

Private W. R., "A," 180th Pennsylvania, 20: Maryland Heights, 5th July; died, Frederick, 20th July, 1864.

Contributed by Acting Assistant Surgeon Shimer.

912. The lower portion of the femur and the upper portion of the tibia of the left knee. The outer tuberosity of the tibia
b. 37. is shattered, and an extensive longitudinal fissure extends down the shaft. The articulation has been destroyed by suppuration. There is a slight deposit of callus on the borders of the condyles of the femur and a considerable quantity has been irregularly thrown out, of which some has been reabsorbed around the seat of injury.

Contributor and history unknown.

3482. The upper half of the left tibia, shattered below its head and fractured through the articulation.
b. 38. Private J. E., "H," 40th Illinois: Kenesaw Mountain, 27th June; patient positively refused to submit to amputation and died, 12th July, 1864.

Contributed by Surgeon A. Goslin, 48th Illinois.

3711. The upper portions of the bones of the leg, with the head of the tibia perforated through the external tuberosity
b. 39. from behind forward and upward by a conoidal ball.

Private R. C. H., "F," 11th Maine: Deep Bottom, Va., 16th August; died in hospital, Beverly, N. J., 26th September, 1864.

Contributed by Assistant Surgeon C. Wagner, U S. Army.

4233. The upper portion of the bones of the right leg. The tibia is fractured by a conoidal ball which passed downward
b. 40. from the front and lodged in the cancellated structure of the head, splitting the outer tuberosity.

Private W. L. J., "F," 1st Maine Cavalry, 30: admitted hospital greatly exhausted, Washington, 16th April; died, 17th April, 1865.

Contributed by Surgeon O. A. Judson, U. S. Vols.

See class **XXVII.** B. B. d.

3704. The bones of the right knee, with the head of the tibia shattered.
b. 41. Private A. M., "A," 32d U. S. Colored Troops: Honey Hill, S. C., 30th November; died, Beaufort, S. C., 18th December, 1864.
Contributed by Surgeon J. Trenor, U. S. Vols.

760. The upper portions of the bones of the right leg, with the head of the tibia shattered by a ball passing through it
b. 42. transversely. The fragments are necrosed.
Private P. G., 1st Delaware: Antietam, 17th September; died, Frederick, 17th October, 1862.
Contributed by Acting Assistant Surgeon W. W. Keen, jr.

1610. The bones of the left knee, with the inner tuberosity fractured.
b. 43. Private W. J., "F," 82d Ohio, 22: Gettysburg; died in Baltimore of exhaustion, 25th July, 1863.
Contributed by Assistant Surgeon D. C. Peters. U. S. Army.

2718. The bones of the left knee, the inner aspect of the internal tuberosity of the tibia is carried away and the articular
b. 44. surfaces eroded.
Private M. A., "A," 10th New Hampshire, 24: Cold Harbor, 3d June; died, Washington, 29th June, 1864.
Contributed by Acting Assistant Surgeon H. M. Dean.

3426. The bones of the right knee, with the head of the tibia thoroughly shattered by oblique perforation.
b. 45. Private J. S. T., "G," 102d Pennsylvania, 18: Cedar Creek, 19th October; admitted hospital, Baltimore; died, 26th October, 1864.
Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

1980. The bones of the left knee, with the outer tuberosity of the tibia fractured by a conoidal ball, involving the joint.
b. 46. The missile, split and battered, is impacted between the heads of the tibia and fibula, and the articular surfaces of the joint are destroyed by ulceration. An oblique fracture in the shaft of the tibia is directly connected with the graver injury only by fissures.
Sergeant D. F. W., "B," 1st Vermont Cavalry, 23: Brandy Station, 6th October; admitted hospital, Washington, 11th October; died, 24th December, 1863.
Contributed by Acting Assistant Surgeon Fred. G. H. Bradford.
See class **XXVII.** B. B. d.

1289. A wet preparation of the right knee, seven weeks after injury. The head of the fibula and external tuberosity
b. 47. of the tibia are shattered. The articular surface is destroyed by suppuration.
Sergeant M. H. C., "A," 60th New York, 25: Chancellorsville, 4th May; admitted hospital, Washington, 14th June; died exhausted, 24th June, 1863.
Contributed by Surgeon D. W. Bliss, U. S. Vols.
See 4021, **XXII.** A. B. a. 11.

983. The bones of the right knee, with the inner condyle and head of the tibia fractured posteriorly.
b. 48. Private W. J. P., "H," 132d Pennsylvania: Fredericksburg, 13th December; died, Washington, 28th December, 1862.
Contributed by Acting Assistant Surgeon W. A. Harvey.

468. The lowest fourth of the left femur, showing a fracture of the internal condyle, in which a round ball lodged.
b. 49. Private G. C., "C," 63d Ohio, 20: Corinth, Mississippi, 3d October; died, in St. Louis, 29th October, 1862.
Contributed by Surgeon J. T. Hodgen, U. S. Vols.

1618. The bones of the left knee, with the inner condyle of the femur and inner tuberosity of the tibia fractured by a
b. 50. ball passing from above downward.
Private W. O. A., "F," 17th Maine, 20: Gettysburg, 2d July; died of exhaustion, Baltimore, 24th July, 1863.
Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

707. The bones of the right knee, with the outer condyle fractured by a ball from the rear lodging in the intercondyloid
b. 51. fossa. The articulation is destroyed by suppuration. The history is incomplete, but the specimen is evidently post mortem.
Case of B.
Contributed by Acting Assistant Surgeon R. Ottman.

1948. The bones of the right knee, with the outer condyle fractured by a flattened conoidal ball, which is embedded in
b. 52. it. There has been a slight deposit of callus. The ulcerative action is well marked, and the patient probably died from exhaustion.
Case of G. W. W.: from Gettysburg without history.
See class **XXVII.** B. B. d.

2800. The lowest third of the left femur. A musket ball passed from the upper portion of the popliteal space downward,
b. 53. fracturing the posterior border of the base of the shaft and the external condyle and emerging at the upper border of the patella. There is an oblique fracture extending the length of the specimen and into the joint.

Private J. F., "F," 35th Indiana: Chattanooga; removed to Murfreesboro', January; died from erysipelas and pneumonia, 23d March, 1864.

Contributed by Surgeon I. Moses, U. S. Vols.

See class **XXIII.** A. A.

242. The bones of the left knee. The inner condyle has been split off by a musket ball passing directly through the
b. 54. articulation from the rear. The fractured bone has been partially consolidated, but the articulation is destroyed by suppuration.

Private S. W., "A," 89th New York, 24: Antietam, 17th September, 1862. Died without an operation.

Contributed by Surgeon T. H. Squire, 89th New York.

3188. The bones of the right knee, with the patella and external condyle shattered. Suppuration appears to have
b. 55. eroded the articular surfaces.

Private A. J. W., "H," 2d Virginia Cavalry, (Rebel,) 22: admitted hospital, Baltimore, 30th July; died of pyæmia, 17th August, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

1156. The lower half of the right femur, exhibiting extensive longitudinal fractures. The articulation is split in the
b. 56. centre and the fracture ends obliquely in the middle of the bone. There is no history, but the specimen presents the appearance of an old subject struck by a fragment of shell in the lowest fourth, crushing in the laminated portion.

Contributor unknown.

1010. The bones of the right knee. The internal condyle is perforated and the external splintered on the posterior aspect
b. 57. by a bullet passing obliquely from side to side.

Contributor and history unknown.

1404. The bones of the right knee, nearly one year after injury. A conoidal ball lodged in the internal condyle from
b. 58. above. There is some deposit of callus around and caries in the course of its passage. The articular surfaces of the femur and tibia are eroded, and the knee was anchylosed in a nearly straight position when admitted to hospital. The patella is attached to the external condyle by bony union. The subject was a mulatto of scrofulous diathesis.

Private T. B., "C," 110th U. S. Colored Troops, 18: Athens, Ala., 25th September, 1864; admitted hospital, Mobile, 4th August; died from exhaustion following suppuration and chronic diarrhœa, 7th September, 1865.

Contributed by Surgeon Samuel Kneeland, U. S. Vols.

1399. The bones of the left knee, with the posterior portion of the internal condyle split off.
b. 59. *See figure* 110.

Private S. K., "E," 7th Michigan Cavalry: wounded by a conoidal carbine ball, which entered the front of the thigh at its middle and, passing downward and inward, lodged beneath the integument on the inner side of the joint, on picket, Chantilly, Va., 19th June; admitted hospital, Washington, 26th; bullet easily extracted from its superficial position, with no indication that the joint was involved, 27th June; some inflammation noticed, 2d July; erysipelas set in, 5th; died, 18th July, 1863. The fracture of the bone was first discovered post mortem, and the case well illustrates the obscurity of symptoms and difficulty of diagnosis which may attend a serious gunshot injury of an articulation so easy of general examination as the knee.

Contributed by Surgeon John A. Lidell, U. S. Vols.

See class **XXIII.** A. A.

FIG. 110. A fracture of inner condyle that was not recognized during life. *Spec.* 1399.

3442. The bones of the right knee, with the patella split and the anterior face of the base of
b. 60. the femur fractured.

Private J. T. E., "A," 22d Pennsylvania Cavalry, 23: admitted hospital, Baltimore, 9th October; died of sphacelus of leg and thigh, 18th October, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

3791. The lower half of the left femur, badly comminuted in the lowest third, with the joint opened, by a conoidal ball
b. 61. which entered the thigh in the posterior aspect of the upper third. The shaft is much necrosed.

Private R. T., "H," 114th New York: Cedar Creek, 19th October; constitution impaired and predisposed to phthisis pulmonalis; died from exhaustion, Winchester, 25th November, 1864.

Contributed by Surgeon L. P. Wagner, 114th New York.

See class **XXVII.** B. B. d.

3910. The bones of the left knee, with the outer condyle shattered by a musket ball. The subject refused to submit to
b. 62. amputation, and the specimen illustrates the strenuous reparative efforts at repair of nature as shown in throwing off the fragments and the partial anchylosis of the joint.

Private N. Y., "B," 108th New York: Antietam, 17th September; admitted hospital, Frederick, 29th September, 1862; died from pyæmia, 12th January, 1863.

Contributed by Acting Assistant Surgeon W. S. Adams.

3592. The bones of the right knee, shattered at the inner condyle by a bullet which passed through the middle third of
b. 63. the left thigh inside the femur.

Private E. F. L., "C," 4th New Hampshire, 20: 30th July; hæmorrhage occurred from the femoral in the left thigh, which was ligated above and below the slough by Assistant Surgeon W. Thomson, U. S. Army, Washington, 12th August; died from pyæmia, 23d August, 1864.

Contributed by the operator.

1290. The lowest third of the left femur, with the external condyle fractured and the articular surface disorganized and
b. 64. greatly absorbed. Eight buckshot are said to have been extracted from the wound.

Private M. S., "G," 36th Wisconsin: Chancellorsville, 3d May; admitted hospital, Washington, 15th June; died, 24th June, 1863.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

3347. The bones of the left knee, with the inner condyle fractured and split off by a musket ball striking obliquely
b. 65. from the anterior and outer aspect.

Private S. P., "I," 116th Pennsylvania: Cold Harbor, 3d June; admitted hospital much exhausted, Alexandria, 7th June; died, 11th July, 1864.

Contributed by Surgeon E. Bentley, U. S. Vols.

1274. The bones of the right knee. The inner condyle has been split off by shell fracture. A longitudinal fissure
b. 66. extends up the anterior face of the shaft. The joint surfaces are carious and greatly absorbed.

Private T. C., "F," 8th New Jersey, 32: Chancellorsville, 3d May; a prisoner six days; admitted hospital, Washington, 14th June; died from pyæmia, 17th June, 1863.

Contributed by Surgeon G. S. Palmer, U. S. Vols.

2125. The bones of the right knee, the patella and internal condyle being fractured by the passage of a bullet from
b. 67. front to rear. The patella and femur and the tibia and femur are anchylosed.

Private J. H., "C," 38th Illinois: Chickamauga, 20th September; in the enemy's hands several days; admitted hospital, Murfreesboro', 2d October; died from exhaustion, 4th October, 1863.

Contributed by Surgeon I. Moses, U. S. Vols.

3441. The bones of the right knee. The patella is fractured and the base of the knee comminuted, the condyles being
b. 68. split.

J. T., "E," 2d Vermont, 38: Cedar Creek, 19th October; died from exhaustion, Baltimore, 3d November, 1864.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

2057. The bones of the right knee fractured, and the articulation destroyed by suppuration.
b. 69. Corporal P. R., "I," 42d Mississippi, (Rebel,) 50: Gettysburg, 2d July; amputated, Chester, Penna., 24th July; died of exhaustion, 3d August, 1863.

Contributed by Acting Assistant Surgeon J. L. Whitaker.

3472. The lower half of the left femur, fractured at the posterior aspect of the junction of the shaft and epiphysis, with
b. 70. a complete longitudinal split between the condyles extending upward for several inches on the face of the shaft.

Private G. W. B., "A," 65th New York: Cedar Creek, 19th October; died, in Baltimore, 4th November, 1864.

Contributed by Acting Assistant Surgeon G. W. Fay.

2451. The lower portion of the left femur. The outer condyle is fractured and carious.
b. 71. First Sergeant C. M., "F," 57th New York: probably Fredericksburg, 13th December, 1862; died from secondary hæmorrhage, 2d January, 1863.

Contributor unknown.

2103. The bones of the right knee all fractured and much of the articular surface absorbed. Post mortem, an abscess
b. 72. was found enveloping the joint from two inches below the head of the tibia to the middle third of the femur.

Corporal W. R., "E," 100th Indiana: Mission Ridge, 25th November, 1863; died, 7th January, 1864.

Contributed by Assistant Surgeon R. Bartholow, U. S. Army.

297. The lowest fourth of the right femur, shattered by being perforated by a musket ball, with a slight deposit of callus
b. 73. holding one of the fragments misplaced.
Contributed by Surgeon J. T. Hodgen, U. S. Vols.

1815. The right knee, with extensive destruction of the spongy portions of the shaft of the femur and external condyle.
b. 74. Received after Gettysburg.

3431. The bones of the left knee, fractured by a ball passing obliquely from without inward and backward comminuting
b. 75. the heads of the fibula and tibia and outer parts of the inner condyle.
Private A. G., "C," 47th Pennsylvania, 44: admitted hospital, Baltimore, 24th October; died of sphacelus of the leg and thigh, 1st November, 1864.
Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

354. The bones of the right knee, with the outer condyle shattered. There has been a trivial deposit of callus, with
b. 76. much caries and destruction of the articular surfaces of the joint.
Private A. S., 19th Mississippi, (Rebel,) 19: died from exhaustion, about fifty days after the receipt of the injury, Greencastle, Pennsylvania, 1862.

700. The bones of the left knee, with the patella perforated by a musket ball which passed directly through the
b. 77. joint, destroying the crucial ligaments, furrowing the base of the femur and fracturing the inner condyle.
Private J. N. S., "C," 131st Pennsylvania: Fredericksburg, 13th December; admitted hospital, Washington, 17th December, 1862; died of pyæmia, 15th January, 1863.
Contributed by Acting Assistant Surgeon J. C. Wyer.

376. The right knee, with the patella and internal condyle comminuted by a musket ball passing obliquely from front
b. 78. to rear and splitting the shaft of the femur. The borders of the fracture are necrosed. Strips of periosteum retain some of the fragments.
Contributed by Surgeon H. S. Hewit, U. S. Vols.

1321. The bones of the right knee, showing the extremity of the femur comminuted by a conoidal ball and necrosed,
b. 79. and the joint totally disorganized by suppuration.
Private J. B., "I," 4th Ohio: Chancellorsville, 3d May; died from exhaustion, Washington, 14th June, 1863.
Contributed by Assistant Surgeon W. A. Bradley, U. S. Army.

709. A ligamentous preparation of the left knee, which is fearfully lacerated and
b. 80. completely destroyed by a shell, two of the fragments of which are mounted with the specimen. It is difficult to conceive why primary amputation was not performed. *See figure* 111.
Private B. M., "A," 28th Massachusetts: Fredericksburg, 14th December; admitted hospital, Washington, 26th; died without any operation having been performed, 29th December, 1862.
Contributed by Medical Cadet Kingston.
See class **XXVII.** B. A. c.

1038. A wet preparation of the left knee, fractured through the condyles. The speci-
b. 81. men shows a large cavity at the base of the shaft, formed by suppuration, and exhibits the stripping of periosteum from the femur for several inches.
Contributed by Acting Assistant Surgeon Geo. F. Shrady.

3528. The upper portions of the bones of the left leg. The tibia was perforated at
b. 82. the level of the tubercle, with a fissure extending into the joint and a deep longitudinal fracture running down the shaft, which is superficially necrosed. The articulation was destroyed by suppuration and the usual immense abscess occupied the high.
Private M. McM., "K," 81st Pennsylvania: wounded in May, and died the day of admission to hospital, Washington, 26th May, 1864.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.

FIG. 111. Left knee shattered. Fragments of shell. *Spec.* 709.

3175. The lowest third of the right femur. A conoidal ball lodged in the shaft on its outer
b. 83. surface, just at its junction with the condyles, producing an oblique fracture, with radiations, and splitting off the posterior portion of the inner condyle. *See figure* 112.

Contributor and history unknown.

See class **XXVII.** B. B. d.

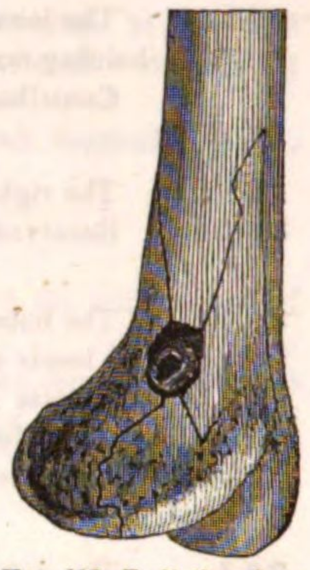

FIG. 112. Radiating fracture in base of right femur from a conoidal ball. *Spec.* 3175.

4707. The right patella, perforated just above its centre with radiating fractures. The broken
b. 84. borders are slightly necrosed, and a minute particle of lead yet remains in the bone.

Private A. V., "E," 163d New York: Fredericksburg, 13th December; admitted hospital, Washington, 20th; no pain nor swelling occurred until violent inflammation set in, 31st December, 1862; free incisions were made, 3d January, and death occurred, 6th January, 1863.

Contributed by Assistant Surgeon P. G. Glennan, U. S. Vols.

See class **XXVII.** B. B. d.

812. The upper portions of the bones of the right leg, after death from exhaustion from a wound
b. 85. involving the joint. A conoidal ball entered from the front, four inches below the articulation, produced a partial fracture of the tibia on the outer side, passed into the joint and rested on the spinous process. The articulation is eroded at points, and at the place of contact with the ball is necrosed. The missile was not discovered in life.

Corporal T. J., "G," 149th Pennsylvania, 19: Gettysburg, 1st July; admitted hospital, Philadelphia, 13th; died exhausted, 23d July, 1863. He was too weak to bear an operation at any time.

Contributed by Acting Assistant Surgeon Wm. V. Keating.

867. The knee extremities of the right femur and tibia. The inner condyle and head of the tibia are slightly fractured,
b. 86. but great portions of the articular surfaces have been carried away by suppuration.

Private A. C., "E," 82d Ohio: Gettysburg, 1st July; admitted hospital, Philadelphia, 13th July; died exhausted, 8th August, 1863.

Contributed by Acting Assistant Surgeon Wm. V. Keating.

1693. The lowest third of the right femur. The outer condyle is fractured by the direct passage from front to rear of a
b. 87. bullet on its inferior surface. A longitudinal fracture extends three and a half inches up the posterior surface of the shaft, prolonged two inches further as a fissure. A complete oblique fracture extends through the shaft, connected with the injury to the condyle only by the longitudinal fracture.

Contributed, without history, by Surgeon Thomas Antisell, U. S. Vols.

For other illustrations, see 4628, **XXVI.** A. 2, 63, 64, 78; 693, **XXVII.** B. B. d. 98.

c. Caries Consecutive upon Other Injury than Fracture of the Bones of the Joint.

3024. The bones of the right knee, with the articular surfaces destroyed, consequent upon a flesh wound of the thigh
c. 1. six inches above the joint.

Private B. Q. C., "G," 18th Massachusetts: admitted hospital, Alexandria, 4th July; died from diphtheritis (?), 2d August, 1864.

Contributed by Acting Assistant Surgeon W. C. Miner.

4190. The bones of the right knee, with the articulation completely eroded and destroyed by a large abscess following a
c. 2. flesh wound of the thigh near to, but not primarily involving the joint.

Private W. H. W., "M," 4th New York Heavy Artillery, 21: Petersburg, 23d June; died of exhaustion, Philadelphia, 17th August, 1864.

Contributed by Assistant Surgeon T. C. Brainerd, U. S. Army.

3578. The bones of the left knee, showing the articular surfaces destroyed by inflammation following a flesh wound from
c. 3. a bullet passing through the thigh an inch above the outer condyle.

Private T. F., "D," 63d New York, 23: Wilderness, 5th May; died of exhaustion, Washington, 3d July, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

4205. The bones of the left knee, with the articulation thoroughly destroyed by an abscess following a flesh wound,
c. 4. which did not open the joint. The outer condyle and tuberosity appear to be fractured.

Private T. G. S., 54th North Carolina, (Rebel,) 45: Harper's Farm, Va., 6th; admitted hospital, Baltimore, 22d April; died from exhaustion, 4th May, 1865.

Contributed by Acting Assistant Surgeon A. Kessler.

3642. The bones of the right knee, denuded and roughened, with the shaft of the femur necrosed from the inflammatory
c. 5. action which followed a longitudinal flesh wound of the thigh, with the ball resting against the outer condyle without fracturing it.

Corporal E. C. P., "A," 34th Massachusetts: Cedar Creek, 19th October; died from exhaustion, Philadelphia, 8th December, 1864.

Contributed by Acting Assistant Surgeon G. P. Sargent.

1974. The lowest fourth of the left femur, obtained post mortem, showing its ulcerated condition after amputation at
c. 6. the upper third of leg, 1st August, for wound of external malleolus by canister, 3d July.

Private J. W. T., "G," 10th Alabama, (Rebel,) 38: Gettysburg; died from hæmorrhage and gangrene, 18th September, 1863.

Contributed by Acting Assistant Surgeon E. A. Rœper.

See classes **XVI.** A. B. f.; **XXIII.** A. B.

2235. The bones of the right knee, with the articulation thoroughly disorganized from inflammation following a flesh
c. 7. wound.

Private W. L., "C," 14th Indiana, 28: knee opened by gunshot, with no fracture of bone, Morton's Ford, Va., 6th February; admitted hospital, Alexandria, 24th March; excessive suppuration commenced, 1st April; died from exhaustion, 19th April, 1864.

Contributed by Surgeon E. Bentley, U. S. Vols.

227. The bones of the left knee, with the articular surfaces completely destroyed by ulceration following a wound of
c. 8. the joint, without bony fracture.

Private E. D., "D," 5th U. S. Cavalry, 21: Gaines' Mill, 27th June; admitted hospital, Philadelphia, 30th July: died from exhaustion, 30th September, 1862. The abscesses were very numerous and the disorganization complete.

Contributed by Acting Assistant Surgeon R. P. Thomas.

3916. The bones of the left knee joint, which was opened by a musket ball. The articular surfaces are fearfully eroded,
c. 9. although no direct injury to the bone appears to have been inflicted by the ball.

Private J. D., "D," 82d New York, 21: Antietam, 17th September, 1862; died from exhaustion, Frederick, 9th February, 1863. The articulation was destroyed and extensive abscesses occupied the leg and thigh.

Contributed by Assistant Surgeon H. A. Du Bois, U. S. Army.

1008. The bones of the right knee, with the articular surfaces destroyed from inflammation following a penetrating
c. 10. wound of the joint without fracture.

——— ———, 118th New York: wounded near the inner border of the patella, 3d February; inflammation set up on the seventh day, and pus began to escape on the fourteenth; became much prostrated and tubercles rapidly formed, from which he died, 26th March, 1863.

Contributed by Assistant Surgeon A. F. Mudie, 4th New York Artillery.

3260. The bones of the left knee, with the joint destroyed by inflammation following a gunshot wound through it
c. 11. without injuring the bones.

Private J. W., "F," 116th Pennsylvania: Petersburg; admitted hospital, Washington, 1st July; died, 17th July, 1864.

Contributed by Acting Assistant Surgeon G. N. Hopkins.

3037. The lowest third of the left femur, partially fractured above the outer condyle.

c. 12. Private W. B., "E," 7th New York, 23: Cold Harbor, 2d June; extensive abscesses opened the joint, and the thigh was amputated by Surgeon R. B. Bontecou, U. S. Vols., Washington, 25th June; died, 6th July, 1864.

Contributed by the operator.

See class **XIII.** A. B. a.

1957. The bones of the left knee, showing the femur severely contused on the anterior aspect of the base of the shaft,
c. 13. with a partial fracture extending into the condyles. The joint has been destroyed by ulceration.

Contributor and history unknown.

See class **XIII.** A. B. a.

2055. Post mortem specimen, showing extensive ulceration of the knee joint following fracture of the head of the fibula,
c. 14. with the articulation not primarily involved.

Private B. F. C., "H," 13th North Carolina (Rebel): Gettysburg, 3d July; there was no operation; died from pyæmia, Chester, Penna., 29th August, 1863.

Contributed by Acting Assistant Surgeon Birkey.

See class **XV.** A. B. b.

3555. The bones of the right knee, with the outer condyle grazed in its superior portion by a conoidal ball. The joint
c. 15. was not opened, but became consecutively involved.

Private D. H., "D," 155th Pennsylvania, 20: wounded, 8th May; died from exhaustion, Washington, 13th June, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See class **XIII.** A. B. a.

759. The bones of the right knee and the lower half of the femur. The femur has been contused in the lowest third.
c. 16. At the point of impact there is an exfoliation about separating and some periosteal thickening. The knee joint has evidently been destroyed by secondary ulceration.

Contributor and history unknown.

See class **XIII.** A. B. a.

1473. The lower portion of the left femur, obliquely fractured in the lowest third by a conoidal ball which has lodged
c. 17. above the condyles. Excessive suppuration followed, involving the joint.

Private J. H. C., "D," 75th Ohio, 23: Chancellorsville, 3d May; died of pyæmia, Washington, 25th July, 1863.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

See classes **XIII.** A. B. b.; **XXVII.** B. B. d.

719. The upper extremity of the left tibia, partially fractured by a bullet on the anterior surface of the head, with the
c. 18. joint not implicated. The specimen has been damaged after death, so that the bone seems more gravely injured than it really was.

Private R. F. F., "G," 5th New Hampshire: Fredericksburg, 13th December; admitted hospital, Washington, 18th December, 1862; inflammation ensued a week afterward, and death occurred, 9th January, 1863.

Contributed by Assistant Surgeon Alex. Ingram, U. S. Army.

See class **XV.** A. B. b.

1940. The extremities of the left femur and tibia, showing the knee destroyed by ulceration following a fracture of the
c. 19. head of the tibia not primarily involving the joint. There has been some deposit of callus, with much caries and consecutive absorption. The injury was the seat of erysipelas.

Private P. T., "G," 15th Ohio: Gettysburg, 3d July; died, 15th October, 1863.

Received from Gettysburg.

See classes **XV.** A. B. b.; **XXIII.** A. A.

3575. The bones of the right knee, with the articular surface destroyed. An immense abscess reached from the thigh
c. 20. to the leg, the result of a secondary involvement of the joint from perforation of the head of the tibia. In the specimen a fracture extends through the outer tuberosity, but this is not considered the direct result of the wound.

Private J. L., "B," 65th New York, 21: Wilderness, 9th May; admitted hospital, Washington, 13th May; died from exhaustion, 24th June, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See class **XV.** A. B. b.

1972. The bones of the left knee, completely disorganized by suppuration following a fracture of the head of the tibia
c. 21. by a conoidal ball not primarily affecting the joint.

Private C. W., "B," 142d Pennsylvania, 20: Gettysburg, 1st July; died from exhaustion, 30th October, 1863.

Contributed by Acting Assistant Surgeon G. L. Hadley.

See class **XV.** A. B. b.

936. The lowest third of the right femur, obliquely fractured by a round ball, which is embedded. The borders of the
c. 22. fracture are necrosed, but the greater part of the specimen is covered with a thin layer of callus. The articular surface is eroded by secondary ulceration.

Contributed by Assistant Surgeon W. M. Notson, U. S. Army.

See class **XXVI.** B. B. d.

3799. The lowest third of the right femur, comminuted above the condyles by a conoidal ball. Fringes of callus
c. 23. border the fracture. The knee has been involved through the diffuse inflammation that followed.

Private S. D. H., "C," 12th Maine: Opequan Creek, Va., 19th September; died from exhaustion, 3d November, 1864.

Contributed by Acting Assistant Surgeon W. L. Hammond.

See class **XIII.** A. B. b.

4230. The lower half of the left femur, showing a wound from a conoidal ball directly through the upper part of the
c. **24.** inner condyle. A considerable deposit of callus is seen in the neighborhood, with sinuses leading to the shaft, at the bottom of which sequestra are found. The joint surface was indirectly affected and is carious.

Sergeant O. R., "C," 67th New York, 28: Wilderness; admitted hospital, Washington, 21st May; absent on furlough from 3d September, 1864, to 4th February, 1865; case seemed to have progressed well, but knee became inflamed, 10th, and patient died, exhausted, 24th February, 1865. The joint was found disorganized.

Contributed by Surgeon O. A. Judson, U. S. Vols.

See class **XIII.** A. B. a.

3580. The bones of the left knee, after destruction of the joint by ulceration without bony fracture.
c. **25.** Private S. F. B., "D," 17th Michigan, 25: Antietam, 17th September; died, 1st November, 1862.
Contributed by Surgeon T. H. Squire, 89th New York.

For other illustrations, see 3540, **XIII.** A. B. a. 20; 2126, **XIII.** A. B. b. 11; 1338, **XIII.** A. B. b. 44; 3884, **XIII.** A. B. b. 85; 844, **XIII.** A. B. d. 1; 32, **XIII.** A. B. d. 2; 1991, **XIII.** A. B. d. 3; 3831, **XIII.** A. B. d. 30; 3855, **XIII.** A. B. d. 44; 701, **XIV.** A. B. f. 34; 3809, **XIV.** A. B. f. 46; 2036, **XIV.** A. B. f. 131; 2677, **XIV.** A. B. f. 175; 2047, **XIV.** A. B. f. 177; 4215, **XIV.** A. B. f. 187; 3393, **XV.** A. B. b. 48; 2184, **XV.** A. B. b. 56; 1372, **XV.** A. B. b. 58; 1993, **XV.** A. B. d. 48; 1943, **XV.** A. B. d. 49; 3006, **XV.** A. B. d. 57; 3436, **XV.** A. B. d. 58; 3740, **XVI.** A. B. f. 165.

d. Excisions.

237. A portion of the inner condyle of the femur, fractured and said to have been excised.
d. **1.** Contributed by Surgeon D. W. Bliss, U. S. Vols.

3046. The patella and condyles of the right femur, from a case of excision of the knee where the left thigh had been
d. **2.** amputated in the upper third.

Corporal G. W. H., "K," 2d Michigan, 19: patella and condyles of the right femur fractured, and left thigh amputated on the field, Petersburg, 17th June; the patella, two-thirds of the condyles and the articular face of the tibia, excised by Surgeon R. B. Bontecou, U. S. Vols., Washington, 24th June; died of exhaustion, 2d July, 1864.

Contributed by the operator.

4212. The patella, lower portion of the femur and upper portion of the tibia of the right
d. **3.** knee, excised for a musket wound of the patella and outer condyle of the femur. The thickness of the excised portion is two and one-fourth inches. *See figure* 113.

Private D. F. R., "I," 49th Georgia (Rebel): Petersburg, 2d April; admitted General Hospital, Fort Monroe, 13th; excision performed by Surgeon D. G. Rush, 101st Pennsylvania, 18th; died from exhaustion, 26th April, 1865. "He could not have survived amputation twenty-four hours."

Contributed by the operator.

FIG. 113. Bones of right knee excised. *Spec.* 4212.

1956. Five-eighths of an inch of the upper extremity of the left tibia and
d. **4.** nearly two inches of the lower portion of the femur, excised for fracture by a spherical ball which lodged in the inner condyle. The cavity in which the bullet still rests has been enlarged by suppuration to the size of an English walnut. *See figure* 114.

Private G. L., "B," 19th Indiana, 22: Gettysburg, 1st July; admitted hospital, Baltimore, 17th November; bullet detected by the Nelaton probe; excised by Acting Assistant Surgeon F. Hinkle, 1st December; died from pyæmia, 23d December, 1863.

Contributed by the operator.

See 4629, **XXVI.** A. 3, 104.

See classes **XXVII.** B. B. d.: **XXVII.** B″.

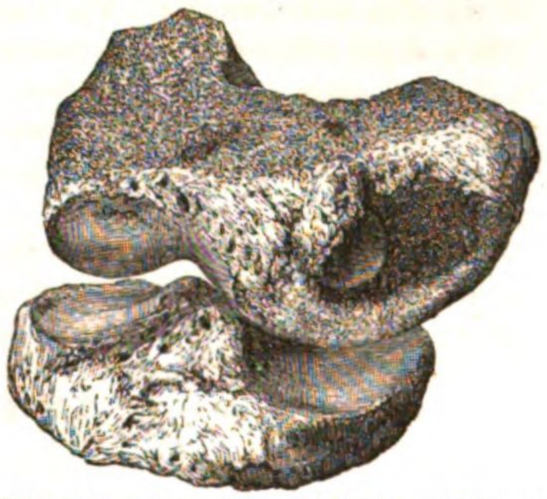

FIG. 114. Extremities of left tibia and femur excised. A round ball rests in inner condyle. *Spec.* 1956.

1909. **d. 5.** The lower part of the right femur and upper parts of the tibia and fibula, from which the knee has been excised. *See figure* 115.

Corporal J. S., "B," 4th Ohio: a conoidal ball fractured the inner condyle and opened the joint, 27th November; admitted hospital, with joint much inflamed, Alexandria, 5th December; one inch of femur and an inch and a half of the tibia excised by Surgeon E. Bentley, U. S. Vols., 8th; died of pyæmia, 14th December, 1863.

Contributed by the operator.

629. **d. 6.** The upper portions of the left tibia and fibula and lower part of the femur. An excision of the heads of the tibia and fibula and of the condyles of the femur has been performed. The superior portions of the leg bones are superficially necrosed, and the lower border of the femur has a thin osseous deposit. *See figure* 116.

Private C. F. G., "I," 1st Pennsylvania Reserves: probably Second Bull Run, 30th August; admitted hospital, Alexandria, 9th September; excised, 15th September; died, 12th October, 1862.

Contributed by Acting Assistant Surgeon Bannister.

See 600, **XXI.** A. B. a. 8.

FIG. 115. Right femur, tibia and fibula after excision of joint surfaces. *Spec.* 1909.

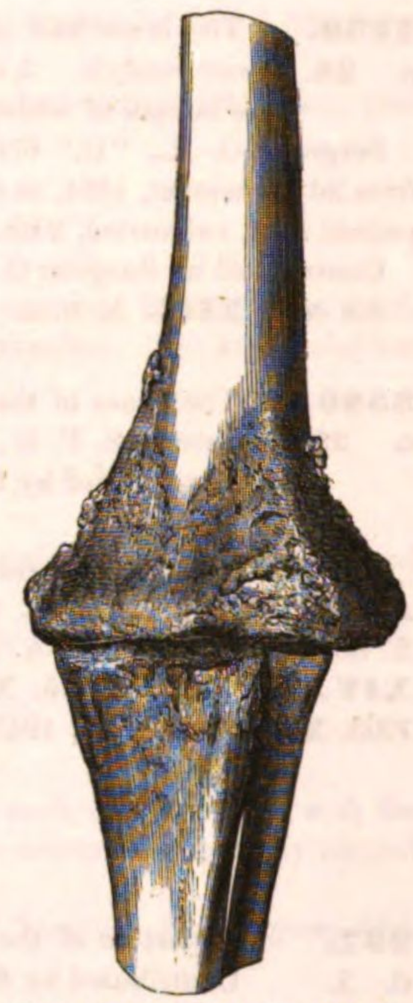

FIG. 116. Left knee after excision. *Spec.* 629.

556. **d. 7.** A dried ligamentous preparation of the left knee, after excision of the patella. The specimen presents the appearance of inflammation having been followed by anchylosis. *See figure* 117.

The history of this case is undetermined.

Contributed by Surgeon D. P. Smith, U. S. Vols.

See 607, **XXI.** A. B. a. 7.

FIG. 117. Left knee after excision of patella. *Spec.* 556.

e. DISARTICULATIONS.

2801. **e. 1.** The bones of the right leg, disarticulated at the knee joint, preserving the patella and not touching the cartilaginous extremity of the femur. Operation performed on account of gangrene following resection of two and a half inches in the lowest third of the tibia after gunshot. The lower fragment is carious at its cut extremity. On the fibular side a slight effusion of callus has occurred. The upper portion is necrosed nearly to the tubercle, a space of seven and a half inches. On the posterior and inferior parts of the upper portion sufficient new bone has been thrown out to form a partial and irregular involucrum. That part of the fibula which corresponds to the excised section is moderately roughened by increased periosteal action.

Corporal T. S., "A," 38th Illinois: shot by a sentinel, Murfreesboro', 6th February; resection by Dr. Finley; gangrene set in in three days; disarticulation by Surgeon I. Moses, U. S. Vols., 4th April, 1863; died from erysipelas, 23d June, 1864.

Contributed by the operator.

See classes **XV.** A. A. c.; **XXIII.** A. A.; **XXIII.** A. B.

929. **e. 2.** The upper portion of the left tibia, transversely perforated about two inches below the articulation, with the joint opened by fissures and disarticulated. There has been some periosteal disturbance about the fracture.

Private —— H., company and regiment unknown: Williamsburg, 5th May; disarticulated by Assistant Surgeon J. S. Billings, U. S. Army, Washington, 17th May, 1862. Died about four weeks after the operation.

Contributed by the operator.

For other illustrations, see 467, **XIV.** A. B. h. 1; 1240, **XIV.** A. B. h. 2; 2058, **XV.** A. B. d. 41; 2061, **XV.** A. B. d. 42; 2065, **XV.** A. B. d. 43; 2049, **XV.** A. B. d. 44; 2051, **XV.** A. B. d. 45; 2791, **XV.** A. B. d. 46; 270, **XV.** A. B. d. 47; 3758, **XV.** A. B. d. 117; 500, **XV.** A. B. d. 118; 2778, **XV.** A. B. f. 36; 668, **XV.** A. B. g. 26; 53, **XVI.** A. B. f. 163; 2655, **XVI.** A. B. f. 164; 2064, **XVI.** A. B. f. 168; 4511, **XVI.** A. B. f. 176; 2660, **XVII.** A. B. a 1.

f. Amputations in the Femur.

448. The lowest portion of the left femur, contused and indented one inch above the inner condyle on the posterior
f. 1. aspect, with a fissure which extends two inches upward. The knee joint was probably involved in the inflammation. The femur was amputated one-half inch above the point of impact; and the stump, showing no attempt at repair, is mounted with the specimen.

Sergeant T. D., 63d New York: Antietam, 17th September; amputated by Surgeon H. S. Hewit, U. S. Vols., Frederick, 3d October; died, 18th October, 1862.

Contributed by the operator.

See classes **XIII.** A. B. a.; **XIII.** A. B. f.

3434. The lowest fourth of the right femur, slightly fractured in the external condyle.
f. 2. Sergeant H. S. W., "B," 2d Connecticut Heavy Artillery, 29: Cedar Creek, Va., 19th October; amputated by Acting Assistant Surgeon B. B. Miles, Baltimore, 26th October; died from chronic diarrhœa, 11th November, 1864.

Contributed by the operator.

See class **XIV.** A. B. a.

262. A ligamentous preparation of the bones of the left knee, amputated in the lowest fourth of the femur for a gunshot
f. 3. chipping of the external condyle followed by inflammation of the joint.

Private M. H., "H," 108th New York, 18: Antietam, 17th September; amputated at Chester, Penna., 30th October, 1862. Recovered.

Contributed by Acting Assistant Surgeon C. J. Morton.

See class **XIV.** A. B. a.

756. A ligamentous preparation of the bones of the right knee, with a fracture of the upper and outer border of the
f. 4. patella. This last-named bone appears to have been longitudinally split at some previous period and united by osseo-ligament.

Private J. D., 69th New York: Antietam, 17th September; amputated in the lowest fourth by Assistant Surgeon R. F. Weir, U. S. Army, Frederick, 20th October, 1862. Recovered.

Contributed by the operator.

2547. The lowest fourth of the left femur, fractured on the inner face of the inner condyle by a ball which passed
f. 5. backward and downward opening the joint.

Private J. W. A., "I," 2d Vermont, 23: Cold Harbor, 1st June; amputated, 10th June, 1864.

Contributor unknown.

2581. The bones of the right knee, the posterior portion of the outer condyle of which is shattered by a conoidal ball
f. 6. passing from above downward.

Private S. W., "I," 6th New Hampshire: Spottsylvania, 12th May; amputated just above the condyles by Surgeon G. L. Pancoast, U. S. Vols., Washington, 13th June; died, 21st June, 1864.

Contributed by the operator.

1482. The lower extremity of the left femur, with a round iron ball (from spherical case) embedded in the anterior
f. 7. surface of the inner condyle. The ball, which produced no comminution, was not discovered until after amputation had been performed for inflammation of the knee.

Private G. E. W., "A," 3d Illinois (Cavalry?): Gettysburg, 1st July; amputated in the lowest fourth by Surgeon W. H. Rulison, 9th New York Cavalry, 17th July, 1863. Result unknown.

Contributed by the operator.

See class **XXVII.** B. B. d.

2504. The lower portion of the left femur, perforated by a conoidal ball from front to rear between the condyles. The
f. 8. articular surface is greatly eroded and partly absorbed.

Private L. G., "E," 3d Maryland: Spottsylvania, 13th May; amputated, Washington, 5th June; died, 23d June, 1864.

Contributed by Acting Assistant Surgeon F. G. H. Bradford.

3944. The lowest fifth of the left femur, with the outer condyle fractured by a conoidal ball, which lodged in it from
f. 9. without.

Private N. D., "E," 102d Pennsylvania, 33: Winchester, 19th September; amputated by Acting Assistant Surgeon Dunott, Frederick, 28th September; died of pyæmia, 7th November, 1864.

Contributed by the operator.

See 1562, **XXV.** A. B. b. 156.

See class **XXVII.** B. B d.

3728. The lowest fourth of the left femur, fractured by a ball which opened the joint and lodged in the inner condyle,
f. 10. which is carious where broken.

Private M. O. B, "E," 156th New York: Cedar Creek, 19th October, 1864; amputated by Acting Assistant Surgeon B. B. Miles, Baltimore, 13th January; transferred to Philadelphia, nearly healed, 16th May, 1865.

Contributed by the operator.

3930. The lower extremity of the left femur, with the inner condyle shattered by shell.
f. 11. Private H. H. R., "F," 1st Michigan Cavalry: Berryville, Va., 4th September; admitted hospital, Frederick, 14th; amputated within three inches of the knee by Acting Assistant Surgeon J. H. Bartholf, 18th; secondary hæmorrhage, 19th; died from pyæmia, 30th September, 1864.

Contributed by the operator.

3066. The bones of the left knee, with the articular extremity of the femur shattered by a bullet.
f. 12. Private A. McC., 63d Pennsylvania, 48: Wilderness, 5th May; amputated in the lowest fourth by Surgeon R. B Bontecou, U. S. Vols., Washington, 14th May, 1864; transferred, doing well, to Pittsburg, 31st March, 1865.

Contributed by the operator.

2500. The upper portions of the bones of the left leg, with the head of the fibula broken off and the tibia fractured in
f. 13. the laminated portion on the posterior aspect, with a minute fissure of the joint. The case is interesting from commencing tetanus being checked by amputation.

Sergeant J. H., "A," 126th New York: Wilderness, 10th May; marked symptoms of tetanus, Washington, 29th; amputated, with immediate relief, 30th May, 1864; discharged the service, healed, 31st July, 1865.

Contributed by Acting Assistant Surgeon F. G. H. Bradford.

489. The bones of the left knee, with the head of the tibia very slightly injured on the inner border by a musket ball,
f. 14. from the rear, involving the joint, which is eroded by ulceration. The interest in the specimen lies chiefly in the slight degree of injury to the bone.

Private T. N., 63d New York: Antietam, 17th September; amputated in the lowest third by Surgeon H. S. Hewit, U. S. Vols., and died, Frederick, 24th October, 1862.

Contributed by the operator.

See class **XIV.** A. B. a.

1891. A ligamentous preparation of the bones of the right knee, except the patella, amputated in the lowest fourth,
f. 15. apparently for a contusion just above and behind the outer condyle.

Contributed by Assistant Surgeon Geo. M. McGill, U. S. Army.

2048. The bones of the left knee, except the patella, amputated for slight gunshot fracture of the outer condyle.
f. 16. Lieutenant A. W. F., 8th Georgia (Rebel): Gettysburg, 3d July; amputated and died, Chester, Penna., 21st July, 1863.

Contributed by Acting Assistant Surgeon Lewis Fisher.

2759. The upper extremities of the left tibia and fibula.
f. 17. Private J. H. C., "E," 110th Ohio, 40: wounded by a conoidal ball which fractured the fibula and partially fractured the tibia without opening the joint, Petersburg, 22d June; admitted hospital with the joint filled with pus, Washington, 4th July; thigh amputated in the lowest third by Assistant Surgeon Alex. Ingram, U. S. Army; died, 6th July, 1864.

Contributed by the operator.

2629. The lower portion of the left femur, fractured in the outer condyle.
f. 18. Private J. S., "E," 64th New York, 21: South Side Railroad, 1st April; admitted hospital, Washington, 6th; amputated by Assistant Surgeon W. F. Norris, U. S. Army, 10th April; died from pyæmia, 1st May, 1865.

Contributed by the operator.

1433. A ligamentous preparation of the bones of the right knee, after amputation in the lowest third of the femur for
f. 19. fracture of the head of the tibia into the joint by a conoidal ball, which embedded itself against the inner side. The tibia is obliquely fractured downward and the broken bone is necrosed.

Corporal F. M., "F," 26th Pennsylvania, 20: Locust Grove, Va., 27th November; admitted hospital, Alexandria, 4th December; amputated by Surgeon Charles Page, U. S. Army, 23d December, 1863; died, 19th January, 1864.

Contributed by Acting Assistant Surgeon Chas. W. Kœchling.

See 2019, **XIII.** A. B. f. 23.

See class **XXVII.** B. B. d.

2498. The bones of the right knee, with the inner tuberosity of the tibia slightly fractured on the anterior surface by a
f. 20. conoidal ball.

Private H. G., "K," 17th Maine, 24: North Anna, Va., 28th May; amputated in the lowest third by Surgeon D. W. Bliss, U. S. Vols., Washington, 10th June; discharged the service, 21st November, 1864.

Contributed by the operator.

1049. The lower extremity of the right femur, with the upper and posterior borders of the condyles fractured, with
f. 21. contusion, by a musket ball.

Sergeant L. T., "H," 5th U. S. Colored Troops, 21: Deep Bottom, Va., 29th September; amputated in the lowest third, Portsmouth, Va., 7th October; died from pyæmia, 21st October, 1864.

Contributed by Assistant Surgeon J. H. Frantz, U. S. Army.

2831. The bones of the right knee, showing the anterior surface of the outer tuberosity slightly broken by a bullet
f. 22. lodging against it.

Private W. A., "F," 6th New York Heavy Artillery: Petersburg, 18th June; amputated in the lowest third of the thigh by Surgeon E. Bentley, U. S. Vols., Alexandria, 5th July; died, 17th July, 1864.

Contributed by Acting Assistant Surgeon G. A. Reicker.

4199. The lower extremity of the right femur and the upper portions of the tibia and fibula. The articular surfaces
f. 23. are eroded by suppuration. The patella was fractured by the lateral passage of a conoidal ball, and was removed on the field, the incision healing by the first intention. No perceptible inflammation occurred in the joint for three weeks after the injury.

Private J. W. D., "E," 7th Maryland, 18: Hatcher's Run, Va., 31st March; admitted hospital, Washington, 5th April; thigh amputated in the lowest third by Surgeon A. F. Sheldon, U. S. Vols , 15th May; died, 23d June, 1865.

Contributed by the operator.

See class **XIV.** A. A. f.

1626. A ligamentous preparation of the right knee, with the outer condyle fractured on its articular surface by a
f. 24. grape shot which was found in the joint.

Drum Major G. H., 30th Missouri: Vicksburg, 21st May; amputated by Acting Assistant Surgeon L. Darling, Hospital Steamer "City of Memphis," 26th; died in Memphis, Tenn., 30th May, 1863.

Contributed by Assistant Surgeon H. M. Sprague, U. S. Army.

3438. The lower portion of the right femur, with the posterior portion of the shaft grooved at its junction with the outer
f. 25. condyle by a bullet that wounded the popliteal artery.

Captain J. B., "A," 16th Virginia (Rebel): Weldon Railroad, 27th October; amputated for secondary hæmorrhage by Surgeon R. B. Bontecou, U. S. Vols., and died, Washington, 25th November, 1864.

Contributed by the operator.

4062. The upper extremity of the left tibia, with a slight fracture of the anterior surface opening the joint.
f. 26. Corporal J. T. L., "B," 13th Ohio Cavalry: thigh amputated in the lowest third, Washington, 14th April, 1865.

Contributed by Medical Cadet E. A. Dulin.

3063. The bones of the right knee, with the patella fractured in its lower half.
f. 27. Corporal W. H., "H," 3d Maryland, 22: Spottsylvania C. H., 11th May; amputated in the lowest third by Surgeon R. B. Bontecou, U. S. Vols., Washington, 27th May; furloughed and reported to General Hospital, Pittsburg, July, 1864.

Contributed by the operator.

1243. The tibia and femur of the right knee, with a round ball which has passed through the outer condyle and lodged
f. 28. in the articulation.

Private A. M., "E," 95th Pennsylvania: Chancellorsville, 3d May; amputated in the lowest third by Assistant Surgeon W. Thomson, U. S. Army, Washington, 14th May; secondary hæmorrhage and ligation of femoral, 28th May; died of pyæmia, 6th June, 1863.

Contributed by the operator.

See class **XXVII.** B. B. d.

3043. The lower extremity of the left femur, with the external condyle fractured by a conoidal ball impinging from
f. 29. without. The bullet, somewhat flattened, is attached.

Private C. M. W., "F," 4th New York, 35: Wilderness, 5th May; amputated in the lowest third by Surgeon R. B. Bontecou, U. S. Vols , Washington, 2d June; secondary hæmorrhage occurred, when the femoral was ligated below the profunda, and the patient died, 5th June, 1864.

Contributed by the operator.

See class **XXVII.** B. B. d.

2136. The bones of the left knee, fractured by a musket ball passing obliquely through the inner condyle. The
f. 30. specimen shows apparent partial anchylosis, although its occurrence is not mentioned in the history.

Captain P. (Rebel): Hoover's Gap, July, 1863; amputated in the lowest third, 4th January; died, 8th January, 1864.

Contributed by Surgeon I. Moses, U. S. Vols.

3041. The upper extremity of the left tibia, of which the external tuberosity is slightly fractured.
f. 31. Private W. R. L., "B," 139th Pennsylvania, 22: Wilderness, 5th May; amputated in the lowest third by Surgeon R. B. Bontecou, U. S. Vols., Washington, 29th May; died from exhaustion, 7th June, 1864.

Contributed by the operator.

790. A ligamentous preparation of the bones of the left knee, perforated in its outer border by a musket ball which
f. 32. grooved the external tuberosity of the tibia and the external condyle of the femur.

Sergeant J. K., 69th New York, 21: Antietam, 17th September; amputated by Acting Assistant Surgeon W. W. Keen, jr., and femoral vein tied, Frederick, 10th October; died of pyæmia, 25th October, 1862.

Contributed by the operator.

See 873, **XVIII. II.** A. B. c. 11.

See class **XVIII. III.** A. B. c.

3594. The lower portion of the left femur contused on the internal condyle, and the patella fractured on the inner
f. 33. border by shell.

Major L. B. B., 12th U. S. Infantry: Spottsylvania, 13th May; amputated in the lowest third by Assistant Surgeon W. Thomson, U. S. Army, Washington, 22d May; died of pyæmia, 21st July, 1864.

Contributed by the operator.

701. A ligamentous preparation of the bones of the left knee, amputated in the lowest third of the thigh five weeks
f. 34. after a partial fracture from a round ball lodging in the femur above the patella. The missile was extracted on the field, but some necrosis followed at the place of indentation. The knee joint was secondarily involved, and the specimen shows erosion of cartilage in the articulation.

Captain H. G. O. W., "K," 19th Massachusetts: Fredericksburg, 13th December; admitted hospital, Georgetown, 24th December; amputated in the lowest third of the thigh by Acting Assistant Surgeon D. R. Good, 17th January, 1863. Recovered.

Contributed by the operator.

See class **XIV.** A. B. c.

2963. The lowest fourth of the right femur, with the outer condyle chipped by gunshot.
f. 35. Private J. J. J. C., "D," 91st New York, 23: South Side Railroad, Va., 1st April; admitted hospital, Washington, 6th; amputated in the lowest third by Assistant Surgeon W. F. Norris, U. S. Army, 8th; died from exhaustion, 14th April, 1865.

Contributed by the operator.

477. The upper portion of the tibia and the lowest third of the left femur. A conoidal ball cut the popliteal artery
f. 36. and partially fractured the femur above the inner condyle. Inflammation of the knee joint, followed by anchylosis, succeeded. The wound became carious, the track of the ball being bordered by callus.

Farrier J. H. A., "I," 21st Pennsylvania Cavalry, 19: Amelia C. H., Va., 5th April; admitted hospital, Baltimore, 21st July, 1865; amputated, with periosteum flaps, by Acting Assistant Surgeon H. McElderry; discharged the service, 14th March, 1866.

Contributed by Assistant Surgeon Geo. M. McGill, U. S. Army.

See 483, **XVI.** A. B. f. 177; 403, **XXV.** A. B. b. 157.

3753. The upper portions of the bones of the left leg, with a fracture of the anterior aspect of the head of the tibia by a
f. 37. conoidal ball.

Private J. J., "I," —— Iowa Cavalry, 20: wounded on a scout, Alabama; admitted hospital, Nashville, 25th November, 1864; amputated in the lowest third of the thigh by Assistant Surgeon J. A. Freeman, U. S. Vols.; transferred North, in good condition, 3d January, 1865.

Contributed by the operator.

3044. The lower extremity of the left femur, with the anterior surface of the inner condyle fractured.
f. 38. Private G. W. C., "G," 83d Pennsylvania, 23: Wilderness, 12th May; amputated in the lowest third by Acting Assistant Surgeon C. P. Trautman, Washington, 19th; died exhausted, 25th May, 1864.

Contributed by Surgeon R. B. Bontecou, U. S. Vols.

801. The upper portion of the right tibia, slightly fractured on the posterior aspect of the inner tuberosity by a musket
f. 39. ball passing transversely.

Private J. R. W., 14th Connecticut: Antietam, 17th September; died of pyæmia, Frederick, 9th October, 1862.

Contributed by Assistant Surgeon G. L. Porter, U. S. Army.

353. A ligamentous preparation of the bones of the left knee, with the patella split by a round ball, which yet remains
f. 40. embedded in it. Traces of necrosis border the wound. Secondary amputation was probably performed.

Contributed by Assistant Surgeon Warren Webster, U. S. Army.

See class **XXVII.** B. B. d.

1699. A ligamentous preparation of the bones of the right knee. The tibia is fractured by a round ball which lodged
f. 41. just above the head of the fibula, involving the latter.

Sergeant N. R., "D," 26th Pennsylvania, 22: Gettysburg, 2d July; amputated in the lowest third by Surgeon C. W. Jones, U. S. Vols., Baltimore, 19th; two inches of femur removed, 31st July; secondary hæmorrhage and ligation of femoral, 14th August; died, 2d October, 1863.

Contributed by the operator.

See class **XXVII.** B. B. d.

3059. The bones of the right knee, with the patella comminuted and the head of the tibia fractured by a musket ball
f. 42. lodging therein. The epiphyses are all detached (in preparation).

Private H. P. W., "G," 53d Pennsylvania, 17: Wilderness, 5th May; amputated in the lowest third by Surgeon R. B Bontecou, U. S. Vols., Washington, 20th May; died from exhaustion, 14th June, 1864.

Contributed by the operator.

638. A ligamentous preparation of the bones of the left knee. A conoidal ball grooved the tibia over the head of the
f. 43. fibula, passing transversely through the joint, and severed the anterior tibial artery near its origin.

Corporal C. W. T., 60th Georgia, (Rebel,) 20: Fredericksburg, 13th December; admitted hospital, Washington, 21st; secondary hæmorrhage, 23d and 26th; amputated in the lowest third on account of approaching gangrene; died, 28th December, 1862.

Contributed by Surgeon O. A. Judson, U. S. Vols.

See class **XXIII.** A. B.

1336. A ligamentous preparation of the right knee, fractured on the posterior aspect of the inner tuberosity by a carbine
f. 44. bullet which passed obliquely upward through the popliteal space.

Private W. V., "D," 4th Pennsylvania Cavalry, 22: wounded, 20th June; severe arthritis suddenly supervened, Washington, 5th July; amputated in the lowest third by Assistant Surgeon Philip C. Davis, U. S. Army, 7th July; transferred North, healed, 16th November, 1863.

Contributed by Surgeon J. A. Lidell, U. S. Vols.

2805. The bones of the left knee, with the external condyle fractured on its anterior face. Some erosion of the articular
f. 45. face has occurred.

Private W. M. H., "E," 147th New York: Petersburg, 18th June; amputated in the lowest third by Assistant Surgeon A. Delaney, U. S. Vols., Washington, 6th July, 1864. Recovered.

Contributed by the operator.

3809. The extremities of the femur and tibia of the right knee. A conoidal ball produced a flesh wound of the outer
f. 46. aspect of the joint, which did well until attacked with hospital gangrene three weeks after the injury.

Private G. R., "B," 26th Georgia, (Rebel,) 22: Monocacy Junction, 9th July; hospital gangrene, Frederick, 29th July; amputated in the lowest third, 6th August; died, 8th August, 1864.

Contributed by Acting Assistant Surgeon J. H. Coover.

See classes **XIV.** A. B. c.; **XXIII.** A. B.

2105. The bones of the left knee. The patella is fractured on its inner border by a ball passing obliquely through the
f. 47. joint, slightly injuring the tibia and femur. The articulation is entirely destroyed by ulceration.

Private J. S., "F," 15th Indiana: Mission Ridge, 25th November, 1863; amputated by Assistant Surgeon R. Bartholow, U. S. Army, Chattanooga, 22d January, 1864. Recovered.

Contributed by the operator.

754. The bones of the right knee. A conoidal ball passed through the joint, but does not appear to have fractured any
f. 48. bone. The consequent suppuration, however, has destroyed the articulation.

Private L. M., "C," 69th New York: Antietam, 17th September; amputated in the "upper" (?) [lowest] third of the femur by Surgeon H. S. Hewit, U. S. Vols., Frederick, 24th November, 1862; sequestrum extracted, New York, 10th January; discharged, 22d April, 1864.

Contributed by the operator.

609. The patella and the extremity of the left femur, fractured on the outer borders.
f. 49. Corporal B. K. C., "K," 16th Maine: Fredericksburg, 13th December; amputated by Surgeon E. Bentley, U. S. Vols., Alexandria, 21st; died of pyæmia, 27th December, 1862.
Contributed by the operator.

2832. The bones of the right knee, with the outer tuberosity of the tibia fractured by a conoidal ball passing obliquely
f. 50. from above downward.
Private W. W., "H," 91st Pennsylvania: Petersburg, 18th June; amputated in the lowest third of the thigh, Alexandria, 5th July; died, 9th July, 1864.
Contributed by Surgeon E. Bentley, U. S. Vols.

4040. The upper portions of the right tibia and fibula, with the head of the fibula fractured by a bullet which entered
f. 51. the popliteal space and severed the popliteal artery. The soft parts were partially mortified when admitted to hospital.
Private G. P. F., "K," 185th New York, 20: admitted hospital and amputated in the lowest third of the thigh by Surgeon N. R. Mosely, U. S. Vols., Washington, 5th April, 1865.
Contributed by the operator.

2584. The bones of the left knee, with the patella comminuted by a conoidal ball, which opened the joint.
f. 52. Private J. B. B., "D," 45th Pennsylvania, 19: Cold Harbor, 4th June; amputated in the lowest third by Acting Assistant Surgeon J. C. Nelson, Washington, 16th June, 1864.
Contributed by the operator.

3814. The upper portions of the bones of the right leg. The posterior aspect of the inner tuberosity and inner condyle
f. 53. were fractured by a conoidal ball.
Private A. M. S., "I," 10th Vermont, 21: Monocacy Junction, Md., 9th July; implication of the joint not at first discovered; amputated in the lowest third of the thigh, Frederick, 3d August; died of pyæmia, 8th August, 1865.
Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

3977. The lower extremity of the right femur, with a conoidal ball impacted in the anterior face of the inner condyle.
f. 54. Captain G. M. A., "F," 53d North Carolina (Rebel): Gettysburg, 2d July; amputated in the lowest third, Frederick, Md., 11th; died, 16th July, 1863.
Contributed by Assistant Surgeon R. F. Weir, U. S. Army.
See 3966, **XVIII. II.** A. B. c. 24.
See class **XXVII.** B. B. d.

287. The bones of the right knee, with the anterior face of the head of the tibia and the lower border of the patella
f. 55. chipped.
Private H. C. F., "D," 8th Connecticut, 18: Antietam, 17th September; amputated in the lowest third by Dr. Oliver, at Keedysville, 17th October, 1862. Result unknown.
Contributed by Surgeon T. H. Squire, 89th New York.

3237. The upper extremity of the right tibia, fractured by a conoidal ball on the anterior portion
f. 56. of the external tuberosity, with the patella split likewise.
Private H. M., "G," 5th New York: Petersburg, 31st March; admitted hospital, Washington, 6th April; amputated in the lowest third of the thigh by Brevet Captain W. F. Norris, Assistant Surgeon, U. S. Army, 9th; died of pyæmia, 22d April, 1865.
Contributed by the operator.

3709. The upper portion of the right tibia, fractured below the head by a conoidal ball which
f. 57. implicated the joint. A slight amount of callus, which became carious, was deposited around the wound. *See figure* 118.
Private E. S., "A," 11th Maine: Deep Bottom, Va., 16th August; amputated in the lowest third of the thigh, Beverly, N. J., 12th September, 1864. *For the remaining history of this remarkable case, see* 81, **XII.** A. B. e. 7.
Contributed by Assistant Surgeon C. Wagner, U. S. Army.

FIG. 118. Right tibia fractured below the head, involving the joint. *Spec.* 3709.

1484. The right patella, shattered by a musket ball. The femur and tibia were uninjured.
f. 58. Private M. S., "B," 183d Pennsylvania: South Side R. R., 1st April; admitted hospital, Washington, 6th; amputated in the lowest third of the thigh by Acting Assistant Surgeon D. L. Haight, 8th April; sequestrum removed, 17th July; under treatment at date of last report, 13th October, 1865.
Contributed by Brevet Captain W. F. Norris, Assistant Surgeon, U. S. Army.
See 2452, **XIII.** A. B. g. 37.

3871. The upper extremity of the tibia, with an extensive fracture of the outer tuberosity, which is grooved by the
f. 59. passage of a bullet.

Private H. P. McM., "C," 61st Georgia, (Rebel.) 23: Monocacy Junction, 9th July; amputated in the lowest third of the thigh, 25th July; transferred to Baltimore, in good condition, 20th September, 1864.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

See 2692, **XXV.** A. B. b. 155.

3835. The bones of the right knee, fractured by a pistol ball passing through the patella and lodging in the inner
f. 60. tuberosity of the tibia, which is deeply grooved.

Private M. F., "L," 21st New York Cavalry, 17: Snicker's Gap, Va.; admitted hospital, Frederick, 27th September; amputated in the lowest third of the femur, 2d October; died of pyæmia, 18th October, 1864.

Contributed by Acting Assistant Surgeon A. R. Gray.

See 3967, **XVIII. II.** A. B. c. 20.

3272. The upper extremity of the bones of the right leg. A conoidal ball has perforated and split the head of the tibia
f. 61. The articular surfaces are eroded.

Corporal A. M., "F," 27th Michigan, 31: Weldon R. R., Va., 21st August; amputated in the lowest third by Surgeon O. A. Judson, U. S. Vols., Washington, 1st September; secondary hæmorrhage and ligation of femoral, 25th September, 1864; discharged the service, 10th May, 1865.

Contributed by the operator.

2538. The bones of the left knee, of which the patella is comminuted and the head of the tibia and condyles slightly
f. 62. fractured by a conoidal ball. The articular surfaces are carious. A longitudinal incomplete fracture extends between the condyles two and a half inches up the femur, on the shaft of which there are two trivial points of periosteal thickening.

Private L. W., "C," 26th Michigan, 23: Spottsylvania, 12th May; amputated in the lowest third by Acting Assistant Surgeon A. Ansell, Washington, 13th June; secondary hæmorrhage occurred, 18th July; femoral ligated, and died, 19th July, 1864.

Contributed by Assistant Surgeon J. C. McKee, U. S. Army.

4063. The lowest extremity of the left femur, with the posterior border of the inner condyle slightly fractured by a
f. 63. round ball, which is attached.

Private G. M., "I," 24th New York Cavalry: amputated, Washington, April, 1865.

Contributed by Medical Cadet E. A. Dulin.

See class **XXVII.** B. B. d.

2922. The bones of the left knee. The patella and the lower end of the femur are slightly fractured and the joint
f. 64. destroyed by suppuration.

Corporal M. C., "K," 1st New Jersey Cavalry: Trevillian Station, Va., 11th June; amputated in the lowest third by Acting Assistant Surgeon W. C. Mulford, Washington, 3d August, 1864.

Contributed by the operator.

158. The lowest fourth of the left femur, with the outer condyle badly broken by a conoidal ball.
f. 65. Private J. M., "K," 110th Ohio: Petersburg, 25th March; amputated in the lowest third, Washington, 3d April; died of pyæmia, 23d April, 1865.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

1486. A ligamentous preparation of the bones of the right knee, with the head of the tibia fractured by a buckshot.
f. 66. The posterior aspect of the tibia is carious for several inches.

Patient received on Hospital Steamer "D. A. January," six weeks after the injury, when the limb was filled with abscesses; thigh amputated in lowest third, and death occurred three weeks afterward, July, 1864.

Contributed by Surgeon A. H. Hoff, U. S. Vols.

3539. The bones of the left knee, with the outer border of the head of the tibia fractured by a bullet.
f. 67. Private J. B., "H," 96th Pennsylvania, 33: wounded, 13th May; admitted hospital, Washington, 28th; thigh amputated in the lowest third, 30th May; secondary hæmorrhage and ligation of femoral in stump by Assistant Surgeon W. F. Norris, U. S. Army, 5th June; died, 7th June, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

3920. The upper portion of the bones of the right leg. The tibia is perforated below the head by a conoidal ball, with
f. 68. a fissure extending into the joint.

Private S. S., "A," 14th Ohio: admitted hospital, Frederick, 12th July; amputated in the lowest third of the thigh, 21st; died from exhaustion, 29th July, 1864.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

2652. The upper portion of the left tibia, with a con idal ball, which entered and split off the internal tuberosity.
f. 69. Private A. H., "H," 111th New York, 47: South Side R. R., 2d April; admitted hospital, Washington, 6th; amputated by Assistant Surgeon W. F. Norris, U S. Army, 7th; secondary hæmorrhage, 11th; died from pyæmia, 16th April, 1865.
Contributed by the operator.
See class **XXVII.** B. B. d.

40. A ligamentous preparation of the bones of the left knee, of which the patella and external condyle are fractured
f. 70. by a piece of shell.
Private W. S., "F," 7th Indiana: Cedar Mountain, 9th August; amputated in the lowest third by Surgeon J. E. Summers, U. S. Army, Alexandria, 15th August; sloughing of stump commenced, 5th November; three inches necrosed bone removed, 15th; secondary hæmorrhage and femoral ligated, 19th November, 1862. Recovered.
Contributed by the operator.
See 706, **XIII.** A. B. g. 36.

3911. The upper portion of the left tibia, with a conoidal ball nearly completely embedded in the outer tuberosity,
f. 71. involving the joint. This case was not made out at first.
Sergeant C. P., "E," 14th Virginia Cavalry (Rebel): admitted hospital, Frederick, 9th July; amputated in the lowest third of the thigh, 25th July; died from exhaustion, 2d August, 1864.
Contributed by Assistant Surgeon R. F. Weir, U. S. Army.
See class **XXVII.** B. B. d.

360. A ligamentous preparation of the bones of the right knee, showing fractures of the outer condyle and heads
f. 72. of the tibia and fibula.
Private G. R., 63d New York, 42: Antietam, 17th September; amputated in the lowest third by Acting Assistant Surgeon A. V. Cherbonnier, Frederick, 17th October; died, 21st October, 1862.
Contributed by Surgeon H. S. Hewit, U. S. Vols.

1852. A ligamentous preparation of the bones of the left knee, with the upper border of the patella fractured by a
f. 73. conoidal ball, which opened the joint.
Corporal H. H. E., "I," 16th New York: Second Fredericksburg, 3d May; amputated in the lowest third by Acting Assistant Surgeon J. S. Smith, Washington, 13th May; secondary hæmorrhage occurred, 20th and 21st May, when the femoral was ligated in Scarpa's triangle; sequestrum from stump removed, 9th August; discharged the service, 26th October, 1863; reported himself in good health, December, 1864.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.
See 1853, **XIII.** A. B. g. 76.

51. The bones of the right knee, the external condyle of which has been fractured and the internal split off by a
f. 74. conoidal ball, which is attached.
Private S. P. K., "I," 7th Ohio: Slaughter Mountain, Va., 9th August; amputated in the lowest third of the femur by Assistant Surgeon T. G. McKenzie, U. S. Army, Alexandria, 14th August, 1862. Recovered.
Contributed by the operator.
See class **XXVII.** B. B. d

1143. The bones of the left knee, with the outer condyle shattered.
f. 75. Private P. J. S., 6th Wisconsin: amputated in the lowest third of the thigh by Surgeon E. Shippen, U. S. Vols.; died, 19th June, 1864.
Contributed by Assistant Surgeon J. T. Duffield, 7th Indiana.

3417. The bones of the right knee. The external condyle was fractured by a musket ball and the articulation
f. 76. thoroughly destroyed by suppuration.
Private J. M. D., "B," 126th Ohio, 23: Fisher's Hill, Va., 21st September; amputated in the lowest third by Acting Assistant Surgeon B. B. Miles, Baltimore, 30th October, 1864; transferred to Philadelphia, 3d April, 1865.
Contributed by the operator.

3562. The upper extremity of the bones of the right leg, with the anterior aspect of the outer tuberosity fractured.
f. 77. Private J. R., "B," 4th Ohio: Cold Harbor, 3d June; amputated in the lowest third of the thigh by Assistant Surgeon W. Thomson, U. S. Army, Washington, 15th June, 1864. Recovered.
Contributed by the operator.

469. f. 78. The upper portion of the left tibia, with the head shattered and the shaft obliquely perforated by a conoidal ball which passed upward from the popliteal space and lodged in the articulation. Long oblique fractures extend down the shaft.

Private T. P. C., "C," 12th Illinois, 22: Corinth, 3d October; amputated in the lowest third of the femur, St. Louis, 1st November; died of pyæmia, 13th November, 1862.

Contributed by Surgeon J. T. Hodgen, U. S. Vols.

See class **XXVII.** B. B. d.

4044. f. 79. The lower extremity of the right femur, with the patella and external condyle fractured by a ball which has perforated the joint.

Private J. H., "I," 8th Pennsylvania Cavalry, 18: Dinwiddie C. H., Va., 31st March; admitted hospital, Washington, 4th April; amputated in the lowest third, 5th April; discharged the service, 30th September, 1865. Artificial limb furnished.

Contributed by Medical Cadet E. A Dulin.

793. f. 80. A ligamentous preparation of the bones of the left knee, with the patella and external condyle badly broken by a conoidal ball.

Private P. O'R., 42d New York 20: Antietam, 17th September; amputated in the lowest third by Acting Assistant Surgeon W. W. Keen, jr., Frederick, 1st October; died, 6th October, 1862.

Contributed by the operator.

1939. f. 81. The bones of the right knee, probably amputated in the lowest third. An attempt has been made to save the limb after the joint was opened by perforation from behind forward. The entire articular surfaces are carious.

Received after Gettysburg.

2276. f. 82. The bones of the left knee, the internal condyle and the head of the tibia being fractured by a conoidal ball, which is impacted in the latter.

Private L. R., "F," 23d North Carolina (Rebel): amputated in the lowest third of the thigh by Surgeon O. A. Judson, U. S. Vols.; died of pyæmia, 30th May, 1864.

Contributed by the operator.

See class **XXVII.** B. B. d.

3424. f. 83. The bones of the left knee, with the patella fractured and the condyles split, and a longitudinal fracture of the shaft of the left femur, by a conoidal ball, which has lodged.

Private O. M. H., "F," 106th New York, 20: Winchester, 19th September; amputated in the lowest third by Acting Assistant Surgeon E. G. Waters, Baltimore, 16th October, 1864; transferred North, 3d April, 1865.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

See class **XXVII.** B. B. d.

120. f. 84. The bones of the left knee, with the patella comminuted and condyles split by a conoidal ball. There are traces of periosteal action.

Private F. M. H., "D," 3d Virginia, 26: wounded, 29th August; amputated by Acting Assistant Surgeon H. C. Heilner, Georgetown, 15th September, 1862. Result unknown.

Contributed by Assistant Surgeon B. A. Clements, U. S. Army.

47. f. 85. The bones of the right knee, with a battered conoidal ball which has destroyed the internal condyle and lodged in the articulation.

Private J. M., "E," 46th Pennsylvania: Cedar Mountain, 9th August; died in Alexandria, 26th August, 1862.

Contributed by Surgeon J. E. Summers, U. S. Army.

See class **XXVII.** B. B. d.

1426. f. 86. The upper portions of the right tibia and fibula. The outer tuberosity of the tibia is shattered.

Private J. F. B., "B," 11th Pennsylvania, 18: South Side R. R., Va., 30th March; admitted hospital, Washington, 6th April; amputated in the lowest third of the thigh by Acting Assistant Surgeon G. P. Harnault, 11th April; several secondary hæmorrhages; died from pyæmia, 21st May, 1865.

Contributed by Brevet Captain W. F. Norris, Assistant Surgeon, U. S. Army.

1490. f. 87. A ligamentous preparation of the bones of the left knee, with a conoidal ball embedded in the head of the tibia.

Captain R. I.: Arkansas Post, 11th January; refused to submit to a primary amputation; transferred to Hospital Steamer "D. A. January," 13th; amputated in the lowest third, on account of violent inflammation, by Surgeon Alex. H. Hoff, U. S. Vols., 15th; died, 18th January, 1863.

Contributed by the operator.

See class **XXVII.** B. B. d.

1481. f. 88. The head of the tibia, with an impacted round ball, which entered from behind, fracturing the internal condyle of the right femur. *See figure* 119.

Unknown: Gettysburg, 1st July; amputated in the lowest third by Surgeon P. A. Quinan, 15th July; died, 17th July, 1863.

Contributed by the operator.

See 4627, **XXVI.** A. 1, 16,

See class **XXVII.** B. B. d.

FIG. 119. Bones of the right knee fractured by an impacted round ball. *Spec.* 1481.

1191. f. 89. A ligamentous preparation of the bones of the left knee. The head of the tibia and the articular surface of the external condyle are grooved by a round bullet which passed through below the patella and lodged in the popliteal space.

Captain G. B. W., "K," 14th Indiana, 29: Chancellorsville, 3d May; amputated in the lowest third by Surgeon H. W. Ducachet, U. S. Vols., Georgetown, 30th May, 1863. Recovered.

Contributed by the operator.

1225. f. 90. The patella and the head of the right tibia, fractured by a conoidal ball from above.

Private J. P., "K," 94th New York: Second Bull Run, 30th August; amputated in the lowest third of the thigh by Acting Assistant Surgeon George McCoy, Washington, 6th September; reamputated, 13th September, 1862; two and a half inches of the femur exfoliated, January, 1863. Recovered.

Contributed by the operator.

577. f. 91. The upper extremity of the right tibia, partially fractured, with contusion, on the anterior face between the tuberosities.

Private B. W. R., "C," 26th New York: probably Fredericksburg, 13th December; amputated by Assistant Surgeon G. M. McGill, U. S. Army, Washington, 29th December, 1862; died, 9th January, 1863.

Contributed by the operator.

3811. f. 92. The lower extremity of the left femur, with the inner condyle comminuted by gunshot. There has been much ulceration of the joint.

Sergeant T. J. L., "E," 3d Virginia Cavalry: accidentally, near Winchester, 21st December; admitted hospital, Frederick, 23d December, 1864; amputated in the lowest third by Assistant Surgeon R. F. Weir, U. S. Army, 9th January; died from pyæmia, 17th January, 1865.

Contributed by the operator.

1255. f. 93. A ligamentous preparation of the right knee, the posterior aspect of the outer tuberosity of which was fractured by a musket ball.

Corporal F. H. M., "F," 6th Maine, 22: Chancellorsville, 3d May; amputated by Assistant Surgeon W. Thomson, U. S. Army, Washington, 14th; secondary hæmorrhage and ligation of femoral in Scarpa's space, 18th; died, 23d May, 1863.

Contributed by the operator.

1601. f. 94. A ligamentous preparation of the bones of the knee, fractured by a round ball which entered the popliteal space, passed forward between the condyles and lodged at the inner border of the patella.

Private E. G., "A," 119th New York, 18: Chancellorsville, 3d May; amputated in the lowest third by Surgeon R. Reyburn, U. S. Vols., Alexandria, 27th May; died of pyæmia, 20th June, 1863.

Contributed by the operator.

See class **XXVII.** B. B. d.

777. f. 95. The bones of the right knee, with the outer tuberosity of the head of the tibia fractured by a ball which perforated it obliquely and fractured the head of the fibula.

Private C. M., 3d Battery, South Carolina Artillery, (Rebel,) 17: South Mountain, 14th September; admitted hospital, Frederick, 21st September; amputated in the lowest third by Assistant Surgeon A. H. Smith, U. S. Army, 2d October; secondary hæmorrhage occurred and femoral ligated four inches below Poupart's ligament, 16th October; died, 28th October, 1862.

Contributed by Acting Assistant Surgeon Redfern Davies.

See 833, **XIII.** A. B. f. 30.

3908. f. 96. The upper portions of the bones of the right leg, with the head of the fibula and outer tuberosity of the tibia fractured by a musket ball passing between them.

Private G. W. M., "I," 61st Georgia, (Rebel,) 19: Gettysburg; amputated in the lowest third of the thigh by Assistant Surgeon R. F. Weir, U. S. Army, Frederick, 14th July; recovered slowly and transferred to Baltimore, 20th October, 1863.

Contributed by the operator.

2898. The bones of the right knee, fractured by a musket ball passing transversely through the joint. The extremity
f. 97. of the femur is utterly broken up and carious, and the head of the tibia is eroded.

Corporal C. N., "K," 1st Maine Heavy Artillery, 23: Pamunkey river, 31st May; gangrene occurred and amputation in the lowest third performed by Surgeon N. R. Mosely, U. S. Vols., Washington, 27th July, 1864.

Contributed by the operator.

See class **XXIII.** A. B.

50. The patella and upper extremities of the bones of the left leg. The inner tuberosity of the tibia is comminuted
f. 98. by a musket ball passing an inch below the articulation, and the fragments are necrosed.

Corporal W. S., "K," 46th Pennsylvania: Slaughter Mountain, 9th August; amputated in the lowest third of the thigh by Assistant Surgeon J. Bernard Brinton, U. S. Army, Alexandria, 16th August; died, 2d September, 1862.

Contributed by the operator.

3767. The bones of the left knee. The external condyle and tibia are shattered by a round ball which passed from rear
f. 99. to front through the joint Amputation was performed in the lowest third of the femur.

Contributor and history unknown.

1732. The bones of the left knee. A round ball entered the upper and inner border of the head of the tibia and passed
f. 100. obliquely through that bone, emerging through the head of the fibula. A very considerable deposit of callus has occurred around the orifice of exit, anchylosing the tibia and fibula; there was no splintering.

Private E. J., "E," 1st Maine: Gettysburg, 2d July; admitted hospital, Baltimore, 9th July; hospital gangrene occurred followed by erysipelas; thigh amputated in the lowest third, 14th September; discharged the service, healed, 9th December, 1863.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

See classes **XXIII.** A. A.; **XXIII.** A. B.

1819. A dried ligamentous preparation of the right knee, with the external condyle badly fractured by a conoidal bullet.
f. 101. Private I. N. S., "D," 9th Louisiana, (Rebel,) 27: Rappahannock Station, Va., 7th November; amputated in the lowest third of the femur by Surgeon J. A. Lidell, U. S. Vols., Washington, 18th November; died from secondary hæmorrhage, 3d December, 1863.

Contributed by the operator.

See 1860, **XIII.** A. B. f. 29; 1892, **XVIII. II.** A. B. c. 21.

4106. The bones of the right knee, fractured by a musket ball which grazed the under surface of the patella and passed
f. 102. through the inner condyle of the femur and head of the tibia. Suppuration destroyed the articulation.

Private J. H., "D," 56th Pennsylvania, 27: Hatcher's Run, Va., 30th March; amputated in the lowest third by Surgeon D. W. Bliss, U. S. Vols., Washington, 25th April; died, 26th April, 1865.

Contributed by Acting Assistant Surgeon J. L. Turner.

2471. The bones of the right knee, with the anterior portion of the inner tuberosity of the tibia carried away by a
f. 103. conoidal ball.

Private J. W., "I," 170th New York: wounded, 22d May; amputated in the lowest third of the thigh by Acting Assistant Surgeon Ottman, Washington, 30th May; died, 26th August, 1864.

Contributed by Surgeon G. L. Pancoast, U. S. Vols.

3817. The lower extremity of the right femur with the patella. The inner border of the patella is chipped by a bullet
f. 104. which was extracted from the wound of entrance.

Private W. A., "G," 8th Virginia Cavalry, (Rebel,) 23: Snicker's Gap, Va., 14th July; admitted hospital, joint not inflamed, Frederick, 21st; amputated in the lowest third of the thigh by Acting Assistant Surgeon T. G. Mitchell, 27th July; died, 10th August, 1864.

Contributed by the operator.

3032. The bones of the left knee. The inner tuberosity of the tibia is shattered by a musket ball which lodged therein
f. 105. from the rear, breaking up much of the comminuted substance and creating a fissure down the shaft.

Private W. B. L., "K," 2d Connecticut, 37: admitted hospital, Washington, 15th June; amputated in the lowest third by Surgeon R. B. Bontecou, U. S. Vols., 16th; died of pyæmia, 19th June, 1864.

Contributed by the operator.

453. The upper extremity of the right tibia, with the inner tuberosity chipped by a musket ball.
f. 106. Lieutenant D. F., "B," 79th New York: Antietam, 17th September; amputated in the lowest third of the thigh by Assistant Surgeon J. B. Brinton, U. S. Army, Frederick, Md., 9th October, 1862. Recovered.

Contributed by Acting Assistant Surgeon J. P. Peabody.

3680. The bones of the right knee, with the inner condyle perforated, involving the joint. An osseous layer is deposited
f. 107. on the lowest fourth of the femur.

Private W. H. R., "I," 188th Pennsylvania: Cold Harbor, 1st June; thigh amputated in the lowest third by Acting Assistant Surgeon R. J. Lewis, Philadelphia, 21st July, 1864. Recovered.

Contributed by Acting Assistant Surgeon B. Boyd.

4228. The lowest fourth of the right femur and the patella. The patella and anterior surface of the external condyle
f. 108. are fractured.

Private D. H., "C," 5th New Hampshire, 21: Farmville, Va., 7th April; admitted hospital, Washington, 16th; amputated in the lowest third, for slight secondary hæmorrhage, by Surgeon O. A. Judson, U. S. Vols., 27th April; died from pyæmia, with extensive abscesses in the thigh and the periosteum stripped, 14th May, 1865.

Contributed by the operator.

1229. A ligamentous preparation of the bones of the left knee, with the patella comminuted and the inner condyle
f. 109. fractured by a conoidal ball.

Corporal H. J. C., "B," 139th Pennsylvania, 25: Second Fredericksburg, 3d May; attempted to save the limb; amputated in the lowest third by Surgeon J. H. Baxter, U. S. Vols., Washington, 9th June; died, 17th June, 1863.

Contributed by the operator.

See 1230, **XXII.** A. B. a. 13.

1172. The bones of the right knee. A round ball struck the tibia just below its head, passed upward and fractured the
f. 110. inner and split off the outer condyle of the femur.

Private H. M., 148th Pennsylvania: amputated in the lowest third.

Contributed by Surgeon C. S. Wood, 66th New York.

2268. The lower extremity of the right femur, the outer condyle of which is fractured and nearly split off by a conoidal
f. 111. ball. About two and a half square inches of the laminated bone is wanting.

Brevet Major General J. C. R., U. S. Vols., Major 2d U. S. Infantry: Spottsylvania C. H., 8th May; amputated in the lowest third by Surgeon B. Norris, U. S. Army, Washington, 15th May, 1864. Recovered.

Contributed by the operator.

1882. The bones of the right knee. The outer condyle and the head of the tibia are badly fractured by a conoidal ball
f. 112. which, compressed upon itself, is lodged in the latter bone, where it was received while kneeling and remained undiscovered for several days.

Private W. G. M., "F," 4th Ohio, 25: Milton's Mills, Va., 27th November; amputated in the lowest third by Surgeon A. N. Dougherty, U. S. Vols., 3d December, 1863.

Contributed by Surgeon J. Dwinelle, 106th Pennsylvania.

See class **XXVII.** B. B. d.

3947. The left patella, fractured on the under and lower border by a very small conoidal pistol ball, which lodged in the
f. 113. bone.

Private A. H., "A," 1st New York Cavalry, 21: accidentally, near Halltown, Va., 1st April; amputated in the lowest third, Frederick, Md., 7th April; discharged the service, healed, 20th June, 1864.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

See class **XXVII.** B. B. d.

2287. The bones of the left knee, with the anterior borders of the head of the tibia and inner condyle fractured by the
f. 114. transverse passage of a conoidal ball.

Captain W. H. L., "B," 4th Michigan, 35: Wilderness, 5th May; amputated in the lowest third of the thigh by Professor Frank Hamilton, Alexandria, 20th May; died from hæmorrhage, 30th May, 1864.

Contributed by the operator.

4068. The upper extremity of the right tibia, the head of which is fractured by gunshot, believed to have been amputated
f. 115. in the thigh.

Supposed to be the case of Private W. H. L., "I," 97th New York, 30: admitted hospital, Washington, 4th April; amputated by Surgeon N. R. Mosely, U. S. Vols, 10th; died, 27th April, 1865.

Contributed by Acting Assistant Surgeon L M. Osmun.

569. A portion of the bones of the left knee, with the outer tuberosity of the tibia fractured.
f. 116. Private C. W., "B," 12th Pennsylvania: Fredericksburg, 13th December; amputated by Assistant Surgeon Daniel Wiesel, Washington, 25th; died, 28th December, 1862.

Contributed by the operator.

2821. The bones of the right knee. The external condyle was fractured by shell and the articulation destroyed by
f. 117. the subsequent suppuration.

Private G. M. T., "I," 3d Pennsylvania Cavalry: Sulphur Springs, Va., 15th October; amputated in the lowest third by Assistant Surgeon Alex. Ingram, U. S. Army, Washington, 23d November, 1863; died from exhaustion, 28th January, 1864.

Contributed by the operator.

2866. The upper extremity of the left tibia, with the inner tuberosity split off.
f. 118. Private P. M., "A," 125th New York, 44: Petersburg, 17th June; amputated in the lowest third of the thigh by Assistant Surgeon Alex. Ingram, U. S. Army, Washington, 15th July, 1864.

Contributed by the operator.

2942. The bones of the right knee, with the head of the tibia and the outer condyle fractured, apparently by shell.
f. 119. Private A. H. P., "H," 188th Pennsylvania, 24: admitted hospital, Washington, 3d June; amputated in the lowest third of the thigh, 10th; died, 14th June, 1864.

Contributed by Surgeon O. A. Judson, U. S. Vols.

3296. The bones of the upper part of the right leg. The external tuberosity of the tibia is fractured by a conoidal ball
f. 120. which entered the articulation from the popliteal space and lodged.

Private W. S., "A," 1st Massachusetts Heavy Artillery, 21: Spottsylvania C. H., 16th May; admitted hospital and amputated in the lowest third by Surgeon D. P. Smith, U. S. Vols., near Alexandria, 25th May; died, 8th June, 1864.

Contributed by the operator.

See class **XXVII.** B. B. d.

3721. The upper half of the left tibia. A conoidal ball passed from the front through the bone two inches below the
f. 121. head, producing an oblique fracture and fissuring the articulation. The specimen shows caries at the point of injury and some attempt at union in the line of the fractures.

Private G. Y., "A," 3d Maryland: Weldon R. R., Va., 30th September; amputated by Acting Assistant Surgeon J. N. Snively, Beverly, N. J., 22d November, 1864. Recovered.

Contributed by Assistant Surgeon C. Wagner, U. S. Army.

3561. The upper extremity of the left tibia, fractured by a bullet from the rear which lodged in the spongy head and
f. 122. fissured the articulation.

Captain A. J. A., "H," 11th Connecticut, 24: Cold Harbor, 3d June; amputated in the lowest third by Assistant Surgeon W. Thomson, U. S. Army, Washington, 15th June; died from pyæmia, 6th July, 1864.

Contributed by the operator.

449. The upper portion of the left tibia, perforated directly through the tubercle by a conoidal bullet, with fissures
f. 123. extending into the articulation. The injured portions are carious.

Private A. McM., 9th New York State Militia: Antietam, 17th September; thigh amputated at Frederick, 22d October, 1862. Recovered.

Contributed by Surgeon J. B. Lewis, U. S. Vols.

816. The upper portions of the bones of the right leg, with the inner tuberosity of the tibia shattered by a musket
f. 124. ball. The fragments are necrosed.

Private A. D. C., "H," 17th South Carolina (Rebel): South Mountain, 14th September; thigh amputated by Acting Assistant Surgeon Halsey, Frederick, 27th September; died, 2d October, 1862.

Contributed by the operator.

3731. The upper extremity of the left tibia, shattered by gunshot.
f. 125. Bugler W. C. S., 1st New York Independent Battery: probably Cedar Creek, 19th October; admitted hospital, Baltimore, 24th October; amputated in the lowest third of the femur by Acting Assistant Surgeon E. G. Waters; died, 23d November, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

3662. The left patella, comminuted by gunshot. Erysipelas supervened.
f. 126. Sergeant P. C., "G," 1st Massachusetts Heavy Artillery: before Petersburg; amputated in the lowest third of the thigh by Acting Assistant Surgeon F. H. Getchell, without reaction, Philadelphia, 11th July, 1864.

Contributor unknown.

3200. The left patella, in fourteen fragments, after gunshot.
f. 127. Corporal J. McD., "B," 94th New York, 20: South Side R. R., Va., 1st April; admitted hospital, Washington, 6th; thigh amputated in the lowest third by Acting Assistant Surgeon M. Gibbons, jr., 8th; died from pyæmia, 20th April, 1865.

Contributed by Brevet Captain W. F. Norris, Assistant Surgeon, U. S. Army.

3060. The lower extremity of the right femur, transversely fractured on the anterior aspect of both condyles.
f. 128. Private W. B., "E," 7th New York: Cold Harbor, 2d June; amputated in the lowest third by Surgeon R. B. Bontecou, U. S. Vols., 25th June; died, 6th July, 1864.
Contributed by the operator.

3414. The upper portion of the left tibia, with the outer tuberosity carried away. The broken bone is carious. A small
f. 129. exostosis exists on the posterior portion of the tibia.
Private J. W. S., "C," 6th Maryland, 18: Cedar Creek, 19th October; admitted hospital, Baltimore, 24th October; amputated by Acting Assistant Surgeon T. F. Murdoch, 9th November; died, 22d November, 1864.
Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.
See class **XV.** C.

3812. The upper portions of the tibia and fibula. The tibia is perforated just below the head by a conoidal bullet which
f. 130. fissured both tuberosities. The fibula is transversely fractured opposite the tibial injury, probably consecutively.
Private T. F., "A," 12th Pennsylvania Cavalry: Monocacy, 9th July; thigh amputated in the lowest third on account of secondary hæmorrhage, Frederick, 24th July; died, 3d August, 1864. No reparative action whatever had occurred.
Contributed by Acting Assistant Surgeon W. S. Adams.
See 3958, **XVIII. II.** A. B. c. 22.

2036. A part of the bones of the right knee, showing evidence of suppuration in the joint following the injury to the
f. 131. anterior aspect of the head of the tibia, which is greater in the specimen than during life.
Captain E. O. C., "C," 15th Virginia (Rebel): wounded at Brandy Station by a conoidal ball passing across the tibia below the head and not involving the joint, 11th October; admitted hospital, Washington, 21st October, 1863; progressed favorably, without constitutional symptoms or inflammation of articulation, until he accidentally injured the knee, 26th January; severe inflammation followed, and amputation in the lowest third of the thigh was performed by Assistant Surgeon J. C. McKee, U. S. Army, 8th February; died from pyæmia, 19th February, 1864.
Contributed by Assistant Surgeon H. Allen, U. S. Army.
See class **XIV.** A. B. c.

323. The upper extremities of the right tibia and fibula. The head of the tibia is very extensively comminuted by a
f. 132. conoidal ball which, split and battered, lodged within the joint. On the inner aspect an attempt at consolidation has occurred.
Sergeant C. E. B., "C," 74th New York: near Manassas, 27th August; amputated in the lowest third by Acting Assistant Surgeon R. Reyburn, Alexandria, 4th September, 1862. Recovered.
Contributed by Surgeon J. E. Summers, U. S. Army.
See class **XXVII.** B. B. d.

4104. The upper extremity of the left tibia. A conoidal ball has lodged directly in the centre of the head, breaking it
f. 133. up and obliquely fracturing the shaft.
Corporal C. M., "K," 5th New Hampshire, 33: Burksville, Va., 7th April; amputated by Surgeon B. A. Vanderkieft, U. S. Vols., Annapolis, 25th April, 1865.
Contributed by the operator.
See class **XXVII.** B. B. d.

3050. The bones of the left knee, with the head of the tibia badly shattered.
f. 134. First Sergeant F. J. R., "E," 112th New York, 29: Cold Harbor, 1st June; thigh amputated in the lowest third by Surgeon R. B. Bontecou, U. S. Vols., Washington, 11th; a series of hæmorrhages occurred and the femoral was ligated above the profunda, when the limb became gangrenous and death followed, 18th June, 1864.
Contributed by the operator.
See class **XXIII.** A. c.

3443. The upper portions of the bones of the leg, with the head of the tibia thoroughly broken up.
f. 135. Private J. R., "D," 12th Connecticut, 34: Cedar Creek, 19th October; amputated in the lowest third of the thigh by Acting Assistant Surgeon C. H. Jones, Baltimore, 4th November; died from exhaustion, 23d November, 1864.
Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

3929. The bones of the left knee, with the head of the tibia badly shattered and the inner condyle fractured. Numerous
f. 136. longitudinal fractures extend down the shaft of the tibia.
Private E. T., 1st Pennsylvania Artillery: thigh amputated in the lowest third, Frederick, Md., 5th August; died from secondary hæmorrhage, 12th August, 1864.
Contributed by Assistant Surgeon R. F. Weir, U. S. Army.
See 3960, **XVIII. II.** A. B. b. 32.

3596. The upper extremity of the right tibia, shattered through the head.
f. 137. Captain R. F., "K," 1st New Jersey: Spottsylvania, 12th May; amputated in the lowest third of the thigh by Assistant Surgeon W. Thomson, U. S. Army, Washington, 27th May; erysipelas ensued and death from exhaustion followed, 14th June, 1864.
Contributed by the operator.
See class **XXIII.** A. a.

2837. The upper half of the left tibia, fractured through the inner tuberosity by a musket ball which passed out at the
f. 138. popliteal space. A long fissure, bordered with osseous deposit, runs down the shaft.
Private J. W. E., "G," 44th Alabama (Rebel): admitted hospital, Washington, 5th June; thigh amputated in the lowest third by Acting Assistant Surgeon T. L. Leavitt, 11th July; died from chronic diarrhœa, 27th October, 1864.
Contributed by the operator.

2941. The bones of the right knee, with the head of the tibia badly fractured by a musket ball which entered directly
f. 139. over the condyle and passed downward.
Private E. B., "B," 188th Pennsylvania: Cold Harbor, 3d June; admitted hospital, Washington, 11th; amputated in the lowest third by Surgeon O. A. Judson, U. S. Vols., 13th; died, 23d June, 1864.
Contributed by the operator.

2286. The bones of the left knee, shattered by a conoidal ball which entered the tibia three inches below the joint
f. 140. and, passing upward, destroyed the inner condyle of the femur.
Private J. M., "D," 12th Massachusetts, 31: Spottsylvania C. H., 9th May; amputated in the lowest third, Washington, 16th May; died from pyæmia, 25th June, 1864.
Contributed by Surgeon O. A. Judson, U. S. Vols.

2272. The bones of the right knee, with the femur and tibia extensively comminuted by a conoidal ball. The upper
f. 141. extremity of the specimen is transversely jagged, as though broken by shell.
Corporal H. B., "G," 6th Maine, 20: Wilderness, 7th May; amputated in the lowest third by Surgeon D. W. Bliss, U. S. Vols., Washington, 14th May; died, 5th June, 1864.
Contributed by the operator.
See class **XXVII.** B. b. d.

121. The bones of the left knee, with the patella and inner condyle shattered by a fragment of shell.
f. 142. Unknown: Second Bull Run, 30th August, 1862; amputated by Assistant Surgeon B. A. Clements, U. S. Army, Georgetown.
Contributed by the operator.

570. The bones of the right knee, with the femur utterly shattered and the posterior aspect of the inner tuberosity of
f. 143. the tibia broken, apparently by a fragment of shell.
Private F. L., "C," 11th Pennsylvania Reserves: probably Fredericksburg, 13th December; admitted hospital, Washington, 23d; thigh amputated, 29th December, 1862; died, 4th January, 1863.
Contributed by Surgeon H. Bryant, U. S. Vols.

41. A ligamentous preparation of the bones of the right knee, with the lower extremity of the femur severely
f. 144. comminuted.
Private M. H., "F," 111th Pennsylvania: Cedar Mountain, 9th August; amputated in the lowest third by Surgeon J. E. Summers, U. S. Army, Alexandria, 15th; died, 27th August, 1864.
Contributed by the operator.

2127. The bones of the left knee, with the femur badly shattered and partly consolidated with some displacement. The
f. 145. articular surfaces are destroyed by ulceration, and the lower extremity of the upper fragment is necrosed.
Private J. M., "F," 24th Illinois: Chickamauga, 20th September, 1863; remained in the hands of the enemy ten days; amputated in the lowest third by Surgeon I. Moses, U. S. Vols., Murfreesboro', Tenn. Died.
Contributed by the operator.

2269. The upper half of the right tibia and fibula, with the outer tuberosity of the tibia fractured by a musket ball.
f. 146. Colonel O. S. W., 83d Pennsylvania: Wilderness, 5th May; thigh amputated by Surgeon D. W. Bliss, U. S. Vols., Washington, 16th May; received leave of absence, 19th June, and was in good health, winter of 1864–5.
Contributed by Surgeon T. Antisell, U. S. Vols.

1077. A wet preparation of a portion of the left knee. A bullet has entered below the patella and, passing obliquely
f. 147. through the outer tuberosity of the tibia, has emerged directly above the head of the fibula. Enough of the integument remains to show the two openings made by the ball.
J. L. H.: amputated by Assistant Surgeon E. Marsh, U. S. Army.
Contributed by the operator.
See class **XXII.** A. b. a.

2256. A wet preparation of the right knee, nine months after injury. The patella was much fractured by a musket ball,
f. **148.** but the specimen shows ligamentous union to have occurred.

Corporal J. Z., "F," 6th Wisconsin Cavalry, 23: probably Gettysburg, 3d July; admitted hospital, Baltimore, 19th July, 1863; amputated in the lowest third of the thigh on account of suppuration, 14th April; discharged the service, 10th December, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

2074. A wet preparation of the right knee, fifteen months after injury. A conoidal ball
f. **149.** perforated the external condyle from behind, fracturing the upper part of the patella.

Anchylosis at a right angle occurred. The limb was amputated on account of profuse and exhausting suppuration.

Private F. W. L., "C," 21st Wisconsin: Perryville, Ky., 8th October, 1862; amputated by Surgeon H. Culbertson, U. S. Vols., Madison, Wis., 3d January; discharged, 26th May, 1864.

Contributed by the operator.

59. The lowest third of the right femur, of which the outer condyle is split off, with an
f. **150.** oblique fracture by a round ball which entered from behind and lodged in the joint. *See figure* 120.

Private R. W., 28th Pennsylvania: South Mountain, 14th September; amputated by Assistant Surgeon C. A. McCall, U. S. Army, Washington, 30th September; died, 2d October, 1862.

Contributed by the operator.

See 4627, **XXVI.** A. 1, 12.

See class **XXVII.** B. B. d.

FIG. 120. Lower extremity of right femur with round ball lodged in joint. *Spec.* 59.

76. The lowest third of the right femur, perforated just above the patella by a musket
f. **151.** ball. Two longitudinal fissures extend several inches upward, and a slight one enters the joint. The wound of entrance is remarkably well defined. *See figure* 121.

Private S. S. K., "E," 10th Pennsylvania Reserves, 21: Second Bull Run, 28th August; amputated by Surgeon Charles Page, U. S. Army, Alexandria, 20th September; died, 22d September, 1862.

Contributed by the operator.

See 4627, **XXVI.** A. 1, 2.

3057. The lowest third of the right femur, which has been penetrated on its anterior face
f. **152.** by a bullet that fractured the patella. A minute fissure extends up the shaft, but there is a marked absence of comminution.

Private C. M. L., "H," 58th Pennsylvania, 30: Cold Harbor, 3d June; thigh amputated in the lowest third by Surgeon R. B. Bontecou, U. S. Vols., Washington, 8th; died from exhaustion, 14th June, 1864.

Contributed by the operator.

3430. The lowest third of the left femur, fractured in the outer condyle, which is carious at
f. **153.** that point, by a musket ball which entered from below and passed out through the popliteal space.

Private L. W. G., "D," 1st Rhode Island Light Artillery: Cedar Creek, 19th October; amputated by Acting Assistant Surgeon E. G. Waters, Baltimore, 7th November; died from exhaustion, 22d December, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

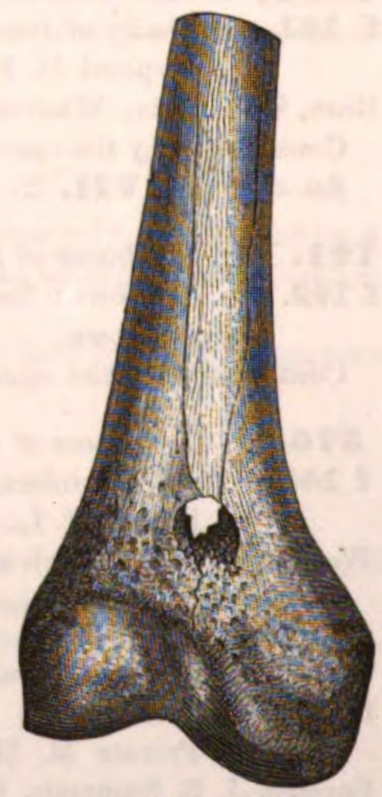

FIG. 121. Right femur perforated above the condyles with fissure in the joint. *Spec.* 76.

576. The lowest third of the right femur, evidently amputated for inflammation of the knee following a partial fracture
f. **154.** from a spherical iron ball from canister, which is lodged in the anterior face of the outer condyle.

Contributed by Acting Assistant Surgeon G. Welles.

See class **XXVII.** B. A. c.

2818. The lowest third of the left femur, with the anterior portion of the external condyle broken off by a conoidal
f. **155.** ball. Certain fissures extend upward, and there are traces of periosteal disturbance.

Sergeant M. C., "B," 9th Massachusetts: Spottsylvania, 12th May; amputated by Assistant Surgeon Alex-Ingram, U. S. Army, Washington, 26th May; died of pyæmia, 9th June, 1864.

Contributed by the operator.

319. The lowest third of the right femur, perforated by a round ball directly through the centre of the shaft just
f. 156. below the patella. The shaft is split longitudinally in its anterior surface for four inches, and, posteriorly, obliquely for the same distance. The condyles are also separated by a fissure.

Private J. D., "A," 25th Ohio: Second Bull Run, 30th August; amputated by Surgeon J. E. Summers, U. S. Army, Alexandria, 5th September; died, 20th October, 1862.

Contributed by the operator.

3423. The lowest third of the left femur, with the upper border of the patella grazed and the anterior surface of the
f. 157. external condyle grooved by a ball passing transversely from without inward through the knee joint.

Private A. E., "F," 114th New York, 21: Cedar Creek, 19th October; amputated by Acting Assistant Surgeon E. G. Waters, Baltimore, 7th November, 1864; transferred to Philadelphia, 6th February, 1865.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

90. The lowest third of the left femur, the upper portion of the tibia and the comminuted
f. 158. patella. The patella was shattered without immediate injury to the other bones, and the specimen shows the fringes of callus that surround it. The articular cartilages are destroyed by the subsequent inflammation. *See figure* 122.

Dr. J. R. M., of Mexico (Rebel): Shiloh, 6th April, 1862; amputated by Surgeon Sutherland, (Rebel,) Richmond. Recovered.

Contributed by Acting Assistant Surgeon F. Schafhirt.

4099. The lowest third of the left femur, fractured across the anterior face of the base, with the
f. 159. joint opened, by a conoidal ball.

Private P. F., "E," 61st New York: Burksville, Va., 7th April; amputated by Assistant Surgeon W. S. Ely, U. S. Vols., Annapolis; died from pyæmia, 26th April, 1865.

Contributed by the operator.

4050. The lowest third of the left femur, with the outer condyle pierced transversely by a conoidal
f. 160. ball which fractured the joint.

Private A. J., "G," 91st New York, 27: Petersburg, 1st April; amputated by Acting Assistant Surgeon T. O. Bannister, Washington, 9th; died, 27th April, 1865.

Contributed by Surgeon A. F. Sheldon, U. S. Vols.

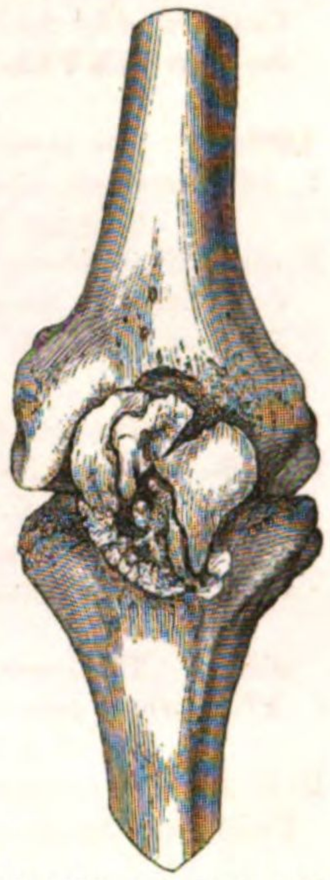

FIG. 122. Left knee, with comminuted patella. *Spec.* 90.

3905. The lowest third of the left femur, fractured by a perforating conoidal ball just above
f. 161. the condyles. The joint is fissured and the shaft comminuted for several inches. A section of one inch of the femur, removed at the time of the amputation, is attached.

Private C. D., "H," 21st New York Cavalry, 27: admitted hospital, Frederick, Md., 27th July; amputated, 28th July; recovered well and discharged the service, 17th December, 1864.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

39. The lowest third of the left femur, completely shattered by a musket ball at the junction of the shaft and
f. 162. epiphysis, with the joint slightly involved.

Private B. F. G., "E," 7th Ohio: Cedar Mountain, Va., 9th August; amputated by Surgeon J. E. Summers, U. S. Army, Alexandria, 15th; died, 29th August, 1862.

Contributed by the operator.

2659. The lowest third of the left femur, showing the passage of a ball from the lower anterior face of the external
f. 163. condyle upward and backward above the popliteal space, causing an oblique fracture through the joint and four inches of the shaft.

Private G. A., "L," 6th New York Artillery: Spottsylvania, 19th May; amputated by Surgeon E. Bentley, U. S. Vols., Alexandria, 25th May; died of pyæmia, 9th June, 1864.

Contributed by the operator.

4270. The lowest third of the left femur, perforated from before backward, above the condyles, by a conoidal ball which
f. 164. chipped the outer edge of the patella.

Private I. S., "K," 14th West Virginia, 16 (?): Winchester, 20th July; admitted hospital, Cumberland, 23d July; amputated in the lowest third by Surgeon J. B. Lewis, U. S. Vols., 26th July; died of secondary hæmorrhage, 14th August, 1864.

Contributed by the operator.

162. The lowest third of the left femur, with the anterior border of the outer condyle chipped by a conoidal ball which
f. 165. had previously passed through the left elbow.

Corporal M. B. D., "E," 185th New York, 22: South Side Railroad, 29th March; amputated in the lowest third of the femur by Acting Assistant Surgeon J. Winslow, Washington, 3d April; died from pyæmia, 5th May, 1865.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

771. The lowest third of the left femur, with the condyles split and the shaft fractured by a conoidal ball from the
f. 166. rear which lodged in the ligamentum patellæ.

Private M. B., "M," 72d Pennsylvania: Antietam, 17th September; amputated by Acting Assistant Surgeon J. H. Bartholf, Frederick, 7th October; discharged, 29th December, 1862.

Contributed by the operator.

2499. The lowest third of the left femur. A conoidal ball struck the anterior surface just above the condyles, causing
f. 167. an oblique fracture of the shaft and a fissure of the joint. Extensive abscesses formed, compelling amputation. The battered missile was found in the articulation.

Private T. M., "D," 8th Ohio, 32: Wilderness, 6th May; amputated by Surgeon D. W. Bliss, U. S. Vols., Washington, 10th June; died, 12th June, 1864.

Contributed by the operator.

See class **XXVII.** B. B. d.

1081. The lowest third of the left femur, with a round ball, which entered the popliteal space, lodged in the outer
f. 168. condyle, which it shattered on the articular surface.

Sergeant M. McC., "D," 140th Pennsylvania, 32: Second Fredericksburg, 3d May; amputated by Assistant Surgeon W. Thomson, U. S. Army, Washington, 9th; died, 17th May, 1863.

Contributed by the operator.

See class **XXVII.** B. B. d.

2820. The lowest third of the left femur, perforated by a conoidal ball "from before backward," (? undoubtedly the
f. 169. reverse,) just above the condyle, fissuring the joint.

Private C. V., "B," 42d Virginia (Rebel): Spottsylvania, 12th May; amputated, Washington, 19th May; died of pyæmia, 10th June, 1864.

Contributed by Assistant Surgeon Alex. Ingram, U. S. Army.

23. The lowest third of the left femur, with the greater part of the external condyle broken off by a conoidal ball
f. 170. which penetrated the joint. This soldier walked off the field when wounded.

Private J. F. B., "F," 5th Ohio: Port Republic, Va., 9th June; amputated by Assistant Surgeon J. S. Billings, U. S. Army, Washington.

Contributed by the operator.

2392. The lowest third of the right femur, with the inner condyle transversely perforated and shattered. The thorax was
f. 171. wounded at the same time.

Private C. G., "G," 3d Maryland: Petersburg, 17th June; admitted hospital and amputated, Washington, 24th; died, 25th June, 1864.

Contributed by Surgeon N. R. Mosely, U. S. Vols.

457. The lowest third of the left femur. The outer condyle was shattered by a shell, and the articular surface is
f. 172. eroded.

Unknown: Antietam, 17th September; amputated, Frederick, 4th October, 1862.

Contributed by Acting Assistant Surgeon G. Chaddock.

3399. The lower half of the right femur, showing the posterior portion of the outer condyle very moderately chipped.
f. 173. Sergeant D. J. C., "A," 69th Ohio: wounded, 1st June; admitted hospital and amputated in the middle third, for extensive inflammation of the knee joint, by Assistant Surgeon C. C. Byrne, U. S. Army, Chattanooga, 16th; died, 18th June, 1864.

Contributed by the operator.

2657. The extremity of the left femur, with the articular surface of the outer condyle transversely fractured by a conoidal
f. 174. ball.

First Sergeant H. S. B., "C," 7th Massachusetts, 21: Wilderness, 6th May; amputated in the middle third by Surgeon E. Bentley, U. S. Vols., Alexandria, 25th May; died of pyæmia, 19th June, 1864.

Contributed by the operator.

2677. The bones of the right knee, showing destruction of the articulation following perforation of the tibia near the
f. 175. tubercle. The track of the wound is carious and the orifice of exit is surrounded by callus. A portion of the femur has been removed for convenience.

Private J. C., "K," 7th Missouri, 23: Raymond, Miss., 16th May; admitted hospital, Jefferson Barracks, Mo, 16th December, 1863; amputated at the junction of the lower thirds by Assistant Surgeon H. R. Tilton, U. S. Army, 10th April; discharged the service, 30th June, 1864.

Contributed by the operator.

See class **XIV.** A. B. c.

3372. The lowest third of the left femur and the patella. The patella is completely and the superior portion of the outer
f. 176. condyle partially fractured.

Private W. R. R., "D," 29th Alabama, (Rebel,) 25: Resaca, Ga., 13th May; amputated in the middle third, Nashville, 17th June, 1864. Died of pyæmia.

Contributed by Surgeon R. S. Stanford, U. S. Vols.

2047. The bones of the right knee, with the articulation destroyed by suppuration following a wound from a conoidal
f. 177. ball which entered four inches below the trochanter major and was extracted three weeks afterward in the popliteal space. There is a slight deposit of callus on the posterior aspect of the shaft, apparently due to irritation set up by contact with the ball in position.

First Sergeant G. A. D., 6th Maine, 21: Rappahannock Station, Va., 9th November, 1863; amputated in the middle third of the thigh by Surgeon D. W. Bliss, U. S. Vols., Washington, 19th February, 1864. Recovered.

Contributed by the operator.

See classes **XIII.** A. B. c.; **XIV.** A. B. c.; **XXVII.** B′. B′.

256. The bones of the right knee, with the patella chipped on its inner border by a musket ball which perforated the
f. 178. joint, lodging in the inner condyle. The whole articular surfaces are disorganized by suppuration.

Private J. H., "D," 1st New York, 26: White Oak Swamp, 30th June; a prisoner three weeks; admitted hospital, Philadelphia, 26th July; purulent infiltration from the ankle to the middle third of the thigh, with hectic; thigh amputated in the middle third by Acting Assistant Surgeon S. D. Gross, 7th August; died from pyæmia, 19th August, 1862.

Contributed by the operator.

4077. The lower portion of the left femur, fractured by a conoidal ball which entered the joint near the patella, passed
f. 179. upward, grooving the anterior face of the bone, in which it lodged, longitudinally exposed, and caused an oblique fissure for several inches.

Corporal F. H. I., "E," 93d Pennsylvania: Fort Fisher, N. C., 25th March; amputated in the middle third by Surgeon D. W. Bliss, U. S. Vols., Washington, 14th April; died from pyæmia, 2d May, 1865.

Contributed by the operator

See class **XXVII.** B. B. d.

3563. The lower half of the right femur, of which the posterior half of the outer condyle was carried away by a bullet.
f. 180. A small exostosis exists on the posterior portion.

Believed to be the case of Private G. A. F., "K," 8th New York, 19: Cold Harbor, 2d June; admitted hospital, Washington, 12th; amputated, 15th; died of pyæmia, 23d June, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See class **XIII.** C.

4232. The bones of the left knee, with the head of the tibia fractured by a conoidal ball. The specimen shows inflam-
f. 181. matory action to have occurred some distance up the shaft. This subject had suffered an amputation of the right thigh in the middle third in the field, 8th April.

Private S. B., "B," 5th New Hampshire, 21: High Bridge, Va, 7th April; admitted hospital, Washington, with amputation of the right thigh and wound of the left knee, 16th April; left thigh amputated in the middle third by Surgeon O. A. Judson, U. S. Vols., 3d June; died from exhaustion, July, 1865.

Contributed by the operator.

42. The lower half of the left femur, exhibiting an extensive longitudinal fracture implicating the joint, complicated
f. 182. with oblique fracture in the lowest third, from a conoidal bullet passing transversely through the femur, posteriorly, just above the condyles.

Private J. S., "A," 3d Maryland: Cedar Mountain, Va., 9th August; amputated by Assistant Surgeon Philip Adolphus, U. S. Army, Alexandria, 15th; died, 20th August, 1862.

Contributed by Surgeon J. E. Summers, U. S. Army.

2760. The upper portions of the bones of the left leg. The head of the tibia is chipped by a conoidal ball which passed
f. 183. transversely across its front, opening the joint.

Private A. H., "A," 8th Michigan, 25: Petersburg, 26th June; admitted hospital, Washington, 1st July; amputated in the middle third of the thigh, 4th; died of pyæmia, 29th July, 1864.

Contributed by Assistant Surgeon Alex. Ingram, U. S. Army.

2661. The lower extremity of the right femur, the inner condyle of which was fractured by a conoidal ball on its posterior
f. 184. aspect.

Private A. G., "E," 93d Pennsylvania, 34: Wilderness, 9th May; amputated in the middle third by Surgeon E. Bentley, U. S. Vols., Alexandria, 29th May; died from secondary hæmorrhage, 2d June, 1864.

Contributed by the operator.

2449. The lower half of the left femur, fractured through the outer condyle by a conoidal ball which lies embedded in
f. 185. the cancellated base of the shaft. The shaft is split upward for five inches on both sides, and the specimen shows a slight atempt at repair.

Private A. P., "A," 122d New York: Wilderness, 6th May; amputated by Surgeon D. W. Bliss, U. S. Vols., Washington, 7th June; died, 13th July, 1864.

Contributed by the operator.

See class **XXVII.** B. B. d.

3987. The lower portion of the left femur, perforated above the outer condyle by a conoidal ball which has fissured the
f. 186. joint and is attached at the wound of exit not changed in outline.

Private J. L., "E," 60th Georgia, (Rebel,) 36: Gettysburg, 2d July; amputated in the middle third, Frederick, 15th July; died from pyæmia, 10th August, 1863

Contributed by Acting Assistant Surgeon Goldsborough.

See 3856, **XIII.** A. B. f. 20; 3968, **XVIII. II.** A. B. c. 16; 3988, **XXII.** A. B. a. 5.

See class **XXVII.** B. B. d.

4215. The bones of the left knee, showing the joint thoroughly destroyed by suppuration and carious. The fibula and
f. 187. tibia are contused about three inches below the joint by a bullet which lodges against the latter, and the inflammation of the knee appears to have been secondary. A portion of the femur has been removed from the specimen.

Private C. P. C., "F," 1st Michigan Infantry, 20: Petersburg, 31st March; admitted hospital, Washington, 5th April; amputated in the middle third by Surgeon A. F. Sheldon, U. S. Vols., 3d June; died, 1st July, 1864.

Contributed by the operator.

See classes **XIV.** A. B. c.; **XV.** A. B. a.; **XXVII.** B. B. d.

2007. The upper portions of the left tibia and fibula, transversely grooved on the posterior surface by a rifle ball which
f. 188. opened the joint.

Private W. S., "C," 7th Virginia (Rebel): Pine Groves, Va., 28th November; amputated in the middle third, Alexandria, 15th December, 1863; died, 6th January, 1864.

Contributed by Acting Assistant Surgeon Jona. Cass.

See 2006, **XIII.** A. B. f. 57; 2008, **XVIII. III.** A. B. a. 3.

147. The upper extremity of the left tibia, fractured, with much loss of cancellated substance, and split down the shaft
f. 189. by a conoidal ball that has lodged between the tuberosities.

Private P. G., "H," 28th Massachusetts: wounded, 28th August; amputated in the middle third, 10th September, 1862; discharged the service, healed, 5th January, 1864.

Contributed by Surgeon O. A. Judson, U. S. Vols.

See class **XXVII.** B. B. d.

1625. The two lower thirds of the left femur, obliquely perforated just above the condyles by a musket ball which opened
f. 190. the joint.

Private W. C. B., "I," 4th Virginia (Rebel): Vicksburg, 19th May; supposed to have been amputated in the middle third by Acting Assistant Surgeon L. Darling, Hospital Steamer "City of Memphis," 26th May, 1863.

Contributed by Assistant Surgeon H. M. Sprague, U. S. Army.

460. The lower extremity of the left femur with the outer condyle grooved and partly split by a conoidal pistol ball.
f. 191. Private J. H., "A," 1st Texas Cavalry, 20: admitted hospital, New Orleans, 5th September; femur amputated at the junction of the lower thirds by Surgeon J. Bockee, U. S. Vols., 10th September, 1863; furloughed, (?) 23d March, 1864.

Contributed by the operator.

See class **XXVII.** B. B. d.

1351. The bones of the right knee. The femur was perforated at the base of its shaft, with much upward splintering.
f. 192. Extensive secondary ulceration of the joint has followed.

Private J. L., "B," 47th Indiana: Vicksburg, 1st May; amputated at the junction of the lower thirds by Surgeon G. Grant, U. S. Vols., Hospital Steamer "Atlantic," 10th June, 1863.

Contributed by the operator.

1994. The bones of the left knee, with a battered conoidal ball embedded between the condyles. A small amount
f. 193. of callus surrounds the large bones, and the articular surfaces of the patella and tibia are eroded.

Private M. K., "B," 106th Pennsylvania, 23: Gettysburg, 2d July; much exhausted and amputation in the middle third performed by Acting Assistant Surgeon F. Hinkle, Baltimore, 10th November, 1863; deserted from hospital, it is presumed healed, Philadelphia, 30th December, 1864.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

See class **XXVII.** B. B. d.

2709. The right femur, comminuted by a musket ball three inches above the knee, with the internal condyle fissured,
f. 194. for which amputation was performed in the middle third.

Private W. H. G., "K," 13th New Hampshire, 25: amputated by Assistant Surgeon S. B. Ward, U. S. Vols., Alexandria, 14th June; died, 25th June, 1864.

Contributed by Acting Assistant Surgeon G. A. Riecker.

2555. The lower extremity of the right femur, with the external condyle shattered by a conoidal ball which, battered, is
f. 195. mounted with the specimen.

Private D. McP., "E," 5th Michigan: Gainesville, Va., 2d June; amputated at the junction of the lower thirds by Acting Assistant Surgeon P. C. Porter, Washington, 14th; died from exhaustion, 20th June, 1864.

Contributed by Assistant Surgeon C. A. McCall, U. S. Army.

See class **XXVII.** B. B. d.

637. The lower extremity of the right femur, with the outer condyle torn up by a conoidal ball which entered the
f. 196. upper third of the thigh while the soldier was lying down.

Private D. M., "F," 62d Pennsylvania, 18: Fredericksburg, 13th December; amputated in the lower portion of the middle third by Surgeon O. A. Judson, U. S. Vols., Washington, 27th December, 1862; died from secondary hæmorrhage, 4th January, 1863.

Contributed by the operator.

3734. The lower portion of the left femur, comminuted two inches above the condyles, with a longitudinal fracture
f. 197. opening the joint.

Sergeant E. D. U., "G," 15th New Jersey: Cedar Creek, 19th October; amputated in the middle third for secondary hæmorrhage by Acting Assistant Surgeon E. G. Waters, Baltimore, 14th November, 1864. Subsequently disarticulated at the hip joint and recovered.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

See 107, **XIII.** A. B. g, 33; 4719, **XXVI.** A. 4, 159.

3062. The bones of the right knee, with the head of the tibia and both condyles fractured. A moderate exostosis occurs
f. 198. on the posterior surface of the tibia.

Private A. D. J., "B," 12th New Hampshire: Cold Harbor, 3d June; amputated in the middle third by Surgeon R. B. Bontecou, U. S. Vols., Washington, 8th; died, 15th June, 1864.

Contributed by the operator.

See class **XV.** C.

3425. The lower portion of the left femur, with the internal condyle torn up and detached.
f. 199. Private W. B. B., "K," 138th Pennsylvania: Cedar Creek, 19th October; amputated in the middle third by Acting Assistant Surgeon B. B. Miles, Baltimore, 27th October, 1864. Recovered.

Contributed by the operator.

4058. The lower half of the left femur, with the lowest fourth shattered by a conoidal ball which, battered, has lodged
f. 200. on the posterior surface.

Private M. D. C., 6th Ohio Cavalry: amputated in the middle third by Surgeon D. W. Bliss, U. S. Vols., Washington, 5th April; discharged the service, 18th July, 1865.

Contributed by the operator.

See class **XXVII.** B. B. d.

2381. The lower portion of the right femur, perforated from behind just above the outer con-
f. 201. dyle, splintering into the joint, breaking up the patella and obliquely fracturing the shaft.

First Sergeant J. G. R., "F," 7th New York Heavy Artillery, 21: Spottsylvania, 19th May; admitted hospital, Washington, 22d; amputated in the middle third by Acting Assistant Surgeon W. C. Mulford, 26th May; died from pyæmia, 2d June, 1864.

Contributed by the operator.

4071. The lowest third of the left femur, with a battered conoidal ball, which has obliquely
f. 202. fractured the shaft and fissured the joint, embedded in the cancellated portion just above the condyle. *See figure* 123.

Private C. L., "A," 95th New York: admitted hospital, Washington, 4th April; amputated in the middle third by Surgeon N. R. Mosely, U. S. Vols., 7th April, 1865.

Contributed by the operator.

See class **XXVII.** B. B. d.

FIG. 123. Left femur, with a bullet lodged above the condyles. *Spec.* 4071.

141. The upper extremity of the right tibia and the fibula. A conoidal ball, which lodged in the outer border of the
f. 203. head of the tibia, has transversely fractured the articular surface and obliquely fractured the shaft.

Lieutenant C. L., "D," 20th New York State Militia: wounded, 13th September; amputated in the middle third of the femur, Washington, 4th October; died, 9th October, 1862.

Contributed by Surgeon O. A. Judson, U. S. Vols.

See class **XXVII.** B. B. d.

661. The lower half of the left femur, comminuted at the base of the shaft by a conoidal ball which has lodged,
f. 204. battered, between the condyles, having split the bone into the joint.

Supposed to be I. R, "I," 8th Pennsylvania Reserves: Fredericksburg, 13th December; amputated by Surgeon J. E. Summers, U. S. Army, Alexandria, 29th December, 1862; died of pyæmia, 10th January, 1863.

Contributed by the operator.

See class **XXVII.** B. B. d.

2927. The bones of the left knee, with the lower extremity of the femur thoroughly shattered and the joint disorganized
f. 205. by long-continued and excessive suppuration.

Private S. B., "M," 4th New York Cavalry, 25: Trevillian Station, Va, 12th June; amputated in the middle third, Washington, 5th August, 1864. Healed.

Contributed by Acting Assistant Surgeon P. C. Porter.

274. The bones of the right knee. A musket ball opened the joint, which is eroded, grazed the patella and fractured
f. 206. the external condyle.

Sergeant R. C., "I," 16th Connecticut, 43: Antietam, 17th September; amputated in the middle third by Dr. Oliver, Keedysville, Md., 15th October, 1862.

Contributed by Surgeon T. H. Squire, 89th New York.

2931. The upper portions of the bones of the leg. The tibia is fairly perforated by a musket ball, with longitudinal
f. 207. fractures extending into the articulation and down the shaft.

Private J. B., "F," 48th Pennsylvania, 25: admitted hospital, Washington, and thigh amputated in the middle third, 7th June; died, 8th June, 1864.

Contributed by Surgeon O. A. Judson, U. S. Vols.

127. The left femur, comminuted in its lowest fourth by a conoidal ball passing from front to rear directly between the
f. 208. condyles and just above the patella.

Private B. P. C., 4th Texas (Rebel): Antietam, 17th September; amputated in the middle third by Surgeon A. N. Dougherty, U. S. Vols., Field Hospital, 24th September, 1862.

Contributed by the operator.

3064. The lower extremity of the right femur, with a round ball, which opened the joint from the front, embedded in
f. 209. the internal condyle.

Private E. R., "H," 8th Maine, 21: Cold Harbor, 3d June; amputated in the lowest third by Surgeon R. B. Bontecou, U. S. Vols., Washington, 9th; amputated in the middle third for repeated secondary hæmorrhage by Acting Assistant Surgeon Trautman; died 13th June, 1864.

Contributed by Surgeon R. B. Bontecou, U. S. Vols.

See class **XXVII.** B. B. d.

2658. The upper portions of the bones of the left leg, with a large portion of the head of the
f. 210. tibia carried away by a ball passing directly from front to rear.

Private T. L., "F," 6th New York Heavy Artillery, 50: Spottsylvania C. H., 19th May; amputated in the middle third of the thigh by Surgeon E. Bentley, U. S. Vols., Alexandria, 25th; died, 28th May, 1864.

Contributed by the operator.

1053. The bones of the left knee, with the outer condyle perforated from behind forward,
f. 211. apparently by a round pistol ball or buckshot, which opened the joint. The articulation is eroded. The wounds, both of entrance and exit, are very small, and the broken condyle has received a new bony coat. *See figure* 124.

Corporal W. C. R., "E," 121st Pennsylvania: Fredericksburg, 13th December, 1862; extensive suppuration occurring, amputated in the middle third by Assistant Surgeon A. Hartsuff, U. S. Army, Washington, 4th February; died, 14th February, 1863.

Contributed by Assistant Surgeon E. J. Marsh, U. S. Army.

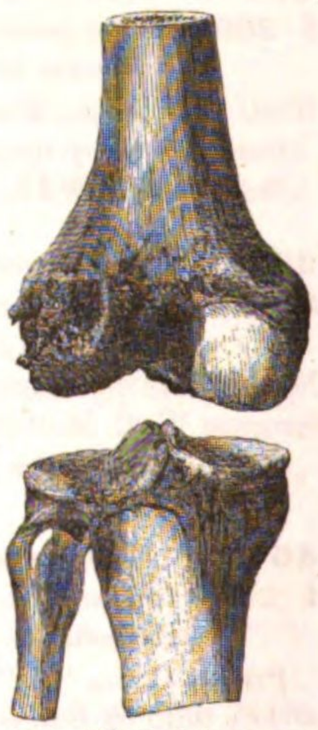

FIG. 124. Left knee perforated from behind. *Spec.* 1053.

3560. The upper extremities of the bones of the left leg, with the posterior aspect of the head of the tibia slightly
f. 212. fractured.

Captain W. S. S., 155th New York, and A. D. C., 24: Cold Harbor, 3d June; thigh amputated in the middle third by Assistant Surgeon W. Thomson, U. S. Army, Washington, 16th; died from exhaustion, 20th June, 1864.

Contributed by the operator.

595. The lower half of the left femur, badly shattered at the junction of the shaft and epiphysis by a conoidal ball
f. 213. passing transversely through the base and nearly detaching the internal condyle.

Private T. G., "A," 12th Massachusetts: Fredericksburg, 13th December; amputated by Surgeon E. Bentley, U. S. Vols., Alexandria, 22d December, 1862; died from secondary hæmorrhage, 1st January, 1863.

Contributed by the operator.

813. A ligamentous preparation of the left knee, with both condyles fractured by a musket ball passing transversely
f. 214. through them.

Private J. K., 63d New York: Antietam, 17th September; amputated in the middle third of the thigh, Frederick, 10th October; died, 19th October, 1862.

Contributed by Assistant Surgeon Searle, 26th New York.

2407. The upper portion of the right tibia and the patella. The lower portion of the patella and the inferior exterior
f. 215. region of the outer tuberosity have been fractured.

Private J. B. F., "A," 16th Massachusetts, 21: Second Bull Run, 30th August: amputated in the middle third of the femur by Dr. M. F. Bowes, Washington, 26th September, 1862. Recovered.

Contributed by the operator.

2408. The bones of the right knee, well shattered on the outer aspect.
f. 216. Private J. H., "I," 7th Indiana, 29: Wilderness, 6th May; admitted hospital, Alexandria, 25th; amputated in the middle third by Surgeon J. Ebersoll, 19th Indiana; died, 29th May, 1864.

Contributed by the operator.

1054. A wet preparation of the left knee, five months after injury. A buckshot entered the popliteal space, and was
f. 217. removed after six weeks from near the patella. The specimen shows the internal tuberosity of the tibia and the corresponding condyle partially eroded The external condyle and patella are also eroded at the place of contact.

Lieutenant E. McM., "D," 22d New York: Second Bull Run, 30th August; admitted hospital, Washington, 2d September; missile removed, 9th October, 1862; thigh amputated in the middle third by Assistant Surgeon E. J. Marsh, U. S. Army, 7th February; removed to private hospital, 30th March, 1863.

Contributed by the operator.

3213. The bones of the left knee. The outer tuberosity of the tibia is slightly fractured and the articular surfaces are
f. 218. much eroded by suppuration. The epyphises have entirely separated in the preparation.

H. W. W., Landsman, U. S. S. "Mendota," 18: wounded by a shell, James River, 16th July; amputated in the upper third, U. S. Naval Hospital, Portsmouth, Va., 2d September; transferred to Brooklyn, 28th October, 1864; stump healed; discharged the service, 11th April, 1865.

Contributed by Surgeon Wm. Johnson, jr., and Passed Assistant Surgeon W. R. Scofield, U. S. Navy.

3016. The upper portions of the right tibia and fibula. A conoidal ball entered the inner condyle of the head of the
f. 219. tibia and perforated that bone outward and backward, resting against the neck of the fibula, which it fractured, and breaking the articular surface.

Private M. McM., "B," "Virginia Grays" (Rebel): Stafford, Va., 25th February, 1863; amputated in the upper (?) third of the femur by Dr. Peter H. Johnson, Richmond; died on the eighth day.

Contributed by Acting Assistant Surgeon F. Schafhirt.

See class **XXVII.** B. B. d.

1153. The upper extremities of the bones of the left leg, struck by a solid shot and shattered. "The muscles of the leg
f. 220. were pounded to pomace."

Private C. C., "A," 125th Pennsylvania: Chancellorsville, 3d May; a prisoner, without attention, until 17th May, when the thigh was amputated in the upper third by Assistant Surgeon C. H. Lord, 102d New York, at Twelfth Corps Hospital. Result unknown.

Contributed by the operator.

1263. The two lower thirds of the right femur with the bones of the knee. Both condyles are fractured, and there is an
f. 221. oblique fracture of the shaft from a conoidal ball. There is a slight deposit of callus on the border of the fracture, but the articulation is much disorganized by suppuration.

Sergeant J. H., "D," 8th New York: Chancellorsville, 3d May; admitted hospital, with extensive abscesses of the thigh and calf, Washington, 14th June; amputated by Surgeon D. W. Bliss, U. S. Vols., 16th June; transferred to St. Elizabeth hospital, Washington, 14th September, 1863.
Contributed by the operator.

2445. The bones of the right knee, after amputation in the lowest third for fracture of the outer condyle.
f. 222. Contributed by Surgeon J. E. Summers, U. S. Army.

1078. A wet preparation of the lowest third of the left femur and the patella. The femur is grooved on its anterior face
f. 223. and the patella completely shattered.
D. N. G.: amputated by Assistant Surgeon E. J. Marsh, U. S. Army.
Contributed by the operator.

2496. A ligamentous preparation of the bones of the left knee. The inner tuberosity of the tibia was fractured and the
f. 224. knee disorganized.
Private J. K., "B," 2d U. S. Infantry: Antietam, 17th September; admitted hospital, Frederick, 27th September; thigh amputated, 16th October, 1862.
Contributed by Surgeon H. S. Hewit, U. S. Vols.

2535. A ligamentous preparation of the left knee, showing ulceration of the articulation. Probably amputated.
f. 225. Contributor and history unknown.

2101. The lowest fourth of the left femur. A conoidal ball entered the outer aspect of the outer condyle and, passing
f. 226. downward and forward, emerged at the inner border of the patella. Both the condyle and patella are badly broken up, and a complete oblique fracture splits off the inner condyle. The lower extremity of the patella possesses a small quantity of callus.
Corporal C. S., 9th Illinois Cavalry: wounded, 7th August; amputated in the lowest third, 14th; died from pyæmia, Memphis, 29th August, 1864.
Contributed by Surgeon W. Watson, U. S. Vols.

3493. The lower portion of the right femur, badly fractured above the condyles and imperfectly united, especially
f. 227. posteriorly, with large necrosed fragments attached.
Private L. S. M., "E," 12th Massachusetts: Second Bull Run, 30th August; admitted hospital, Georgetown, 8th September; amputated at the junction of the lower thirds by Assistant Surgeon B. A. Clements, U. S. Army; transferred to another hospital, 28th September, 1862.
Contributed by the operator.

3368. The upper portion of the right tibia, shattered below the head, whence large fragments have been removed. A
f. 228. fissure extends into the joint, and the cancellated structure of the upper fragment was carious when amputated.
First Sergeant F. M. W., "F," 57th Indiana, 24: Resaca, Ga., 14th May; admitted hospital, Nashville, 27th; thigh amputated in the lowest third, 30th May; died, 22d June, 1864.
Contributed by Surgeon R. L. Stanford, U. S. Vols.

3070. The lower portion of the right femur, with a conoidal ball lodged on the anterior surface, having fractured the
f. 229. patella and obliquely split the shaft.
Private G. A. J., "B," 12th New Hampshire: Cold Harbor, 3d June; amputated in the middle third by Surgeon R. B. Bontecou, U. S. Vols., Washington, 8th; died, 15th June, 1864.
Contributed by the operator.
See class **XXVII.** B. B. d.

446. A large number of small fragments of necrosed bone, being a portion of the head
f. 230. of the tibia fractured by a conoidal ball.
Private J. D., "I," 88th New York: Antietam, 17th September; amputated in the middle third of the femur, 21st October; died, 27th November, 1862.
Contributed by Assistant Surgeon Philip Adolphus, U. S. Army.

77. The lowest fourth of the right femur. The bone is obliquely shattered, with de-
f. 231. struction of the outer condyle and caries of the broken surfaces, but externally a deposit of callus has caused partial union. *See figure* 125.
——— ———: Fredericksburg, 13th December, 1862; amputated, First Corps Hospital, by Assistant Surgeon J. T. Duffield, 7th Indiana. Result unknown.
Contributed by the operator.

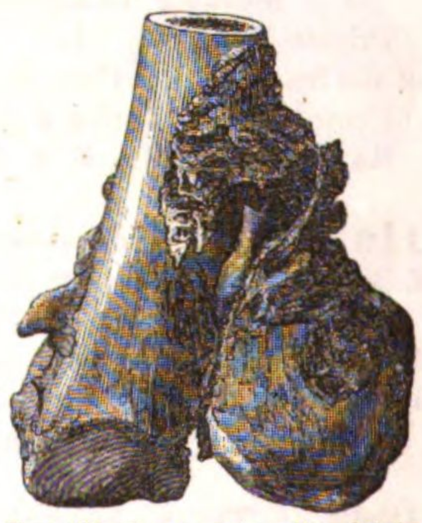

FIG. 125. Lower extremity of right femur, fractured and partly re-united. *Spec.* 77.

4129. f. 232. The lowest third of the left femur and the patella. The femur is cleanly perforated, just above the condyles, by a musket ball from the rear, which caused a very oblique fracture of the shaft and severe fracture of the patella. *See figure* 126.

Sergeant W. B., "K," 86th New York: amputated in the lowest third by Surgeon O. J. Evans, 40th New York, 17th November, 1864.

Contributed by the operator.

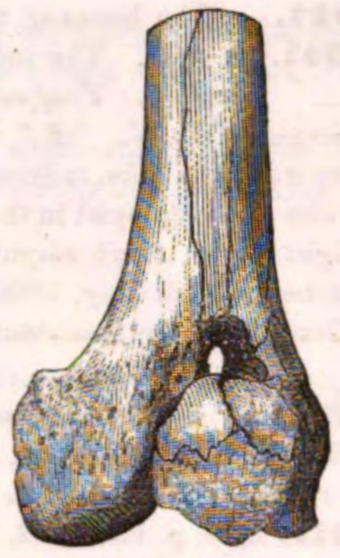

FIG. 126. Patella fractured and femur perforated from the rear. *Spec.* 4129.

4154. f. 233. The upper portion of the left tibia, shattered just below the inner tuberosity, with a fissure extending into the articulation and a longitudinal fracture of six inches down the shaft.

Private J. M., "H," 44th New York: Fredericksburg, 13th December; admitted hospital, Washington, 17th; amputated in the middle third of the thigh, 24th; died, 29th December, 1862.

Contributed by Surgeon T. Antisell, U. S. Vols.

4014. f. 234. The lower half of the left femur, two months after shattering of the joint. A bullet has passed directly through, comminuting the patella and splitting the condyles. An oblique fracture extends three inches up the shaft. The articular surfaces are beginning to show carious action, but the upper border of the femur is fringed with callus.

Private J. R., "B," 2d Wisconsin: Second Bull Run, 30th August; admitted hospital, Georgetown, 28th September; died, 29th October, 1862.

Contributed by Assistant Surgeon J. C. McKee, U. S. Army.

1119. f. 235. The lower portion of the left femur, amputated near the junction of the lower thirds for shattering, by perforation, at the base of the shaft. The patella is badly broken, the condyles divided by a longitudinal fracture, the outer surface of the outer condyle split and the lowest three inches of the shaft comminuted.

Lieutenant J. C., "E," 119th Pennsylvania: Chancellorsville, 3d May; admitted hospital, Georgetown, 8th; amputated by Acting Assistant Surgeon H. W. Ducachet, 11th May; discharged, 22d August, 1863.

Contributed by the operator.

200. f. 236. The lowest third of the right femur and the patella. The patella is chipped on the outer edge and the outer condyle is fractured by a fragment of shell.

First Sergeant W. H. H. McA., "G," 4th Vermont, 27: Fredericksburg, 13th December; amputated by Acting Assistant Surgeon Charles W. Fillmore, Washington, 28th December, 1862; discharged the service, 19th September, 1864.

Contributed by Surgeon T. Antisell, U. S. Vols.

201. f. 237. The bones of the left knee, with the outer condyle split off by a conoidal ball with loss of substance. The line of solution is oblique, on the posterior surface passing to the inner condyle.

Private H. D., "I," 82d Pennsylvania, 33: Cold Harbor, 1st June; amputated by Acting Assistant Surgeon Carlos Carvallo, 8th; admitted hospital, Washington, 11th; died, 13th June, 1864.

Contributed by the operator.

822. f. 238. The bones of the left knee, after amputation for a shell fracture of the inner condyle from the front. The articular surfaces are entirely destroyed by ulceration.

Private A. S., "D," 20th Michigan, 24: Wilderness, 11th May; admitted hospital, Washington, 25th; amputated in the lowest third of the femur, 27th; died, 30th May, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

926. f. 239. A portion of the right femur, amputated in the lowest third for fracture involving the knee. A bullet passed transversely across the front of the shaft at its base, tearing up the cancellated structure, fissuring the joint and obliquely fracturing the bone four and a half inches above the articulation.

Private A. O., 19th Georgia (Rebel): Antietam, 17th September; amputated by Assistant Surgeon C. Bacon, U. S. Army, Frederick, 21st October, 1862.

Contributed by the operator.

1745. f. 240. The lowest third of the left femur, from which the inner condyle has been broken by a bullet which passed transversely through the anterior portion of the joint and inflicted a flesh wound in the right knee. The wound was not painful under flexion, extension or pressure, and the full degree of the injury does not appear to have been recognized until after amputation.

Private I. R., "B," 28th Pennsylvania: Antietam, 17th September; admitted hospital, Washington, 21st September; amputated by Surgeon Charles Page, U. S. Army, 13th October, 1862; died from colliquative diarrhœa, 5th January, 1863.

Contributed by the operator.

4047. The bones of the right knee, with a solid elongated bullet lodged in the inner condyle, where it remained nearly
f. 241. a year. The outer part of the patella was longitudinally fractured and has united. The condyle is somewhat broken. Fragments have attached themselves with slight derangement.

Sergeant W. W., "K," 6th U. S. Cavalry: Dinwiddie C. H., 30th March, 1865; treated with water dressing, Alexandria; there was little pain, redness or swelling, and in three weeks the wound healed with the leg at an angle of 45°; discharged the service and employed in the Quartermaster's Department; after several months the knee became swollen, painful and flexed to a right angle; thigh amputated in the lowest third by Dr. N. S. Lincoln, 19th March; returned to duty as a Quartermaster's watchman, 14th May, 1866.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

For other illustrations, see 1697, **XIII.** A. B. f. 21; 1947, **XIII.** A. B. f. 47; 746, **XIII.** A. B. f. 53; 3342, **XIII.** A. B. f. 68; 2011, **XIII.** A. B. f. 73; 973, **XIII.** A. B. f. 75; 2882, **XIII.** A. B. f. 77; 2156, **XIII.** A. B. g. 28; 4347, **XIII.** A. B. g. 29; 2908, **XIII.** A. B. g. 38; 109, **XIII.** A. B. g. 50; 106, **XIII.** A. B. g. 59; 4349, **XIII.** A. B. g. 63; 3598, **XIII.** A. B. g. 65; 2602, **XIII.** A. B. g. 80; 2261, **XIV.** A. A. f. 1; 800, **XXII.** A. B. a. 15.

g. Other Operations.

915. The bones of the left knee. The condyles are vertically split, the inner one being broken posteriorly and nearly
g. 1. detached, and the articular surface eroded by suppuration. The heads of the tibia and fibula have been fractured, and the extremities of both these bones are thoroughly carious.

The remarkable feature of this case is the attempt that was made to save the limb by the ligation of the femoral artery, with the view of preventing inflammation.

Private G. F. M., "K," 12th Pennsylvania: Antietam, 17th September; femoral artery tied to control inflammation by Dr. —— Rogers, 19th September; the vitality of the parts was lowered, much sloughing occurred and death from exhaustion followed, 28th October, 1862.

Contributed by Acting Assistant Surgeon G. W. Corey.

See class **XVIII. II.** A. B. b.

670. A fragment of the left patella, removed from a comminuted fracture of that bone by a conoidal ball.
g. 2. Private W. H. H., "A," 118th Pennsylvania, 22: Blackburn's Ford, Va., 20th September; admitted hospital, Philadelphia, 27th September, 1862; treated with flax-seed poultice and rest; large abscesses above the knee opened.

Contributed by Surgeon John Neill, U. S. Vols.

2349. The bones of the left knee, with the inner condyle shattered by a conoidal ball.
g. 3. Private L. H., "B," 39th New York: Wilderness, 6th May; fragments and missile removed by Surgeon D. Prince, U. S. Vols., 19th; died from pyæmia, 23d May, 1864.

Contributed by the operator.

See class **XXVII.** B. B. d.

1022. The upper extremity of the left tibia, in the spongy portion of which a buckshot was embedded.
g. 4. Private W. C. J., "E," 11th Pennsylvania Reserves: Fredericksburg, 13th December; buckshot extracted, Alexandria, 31st December, 1862; died of pyæmia, 3d January, 1863.

Contributed by Acting Assistant Surgeon G. F. French.

2137. The bones of the right knee, fractured by a musket ball which entered the outer condyle and lodged in the
g. 5. cancellated structure of the femur. The articulating surfaces are completely destroyed by suppurative action.

Private E. O., "H," 1st Ohio Cavalry: Mission Ridge, 24th October; the ball was extracted at Chattanooga; moved by rail one hundred miles to Murfreesboro', Tenn., December, 1863; died from exhaustion, 11th January, 1864.

Contributed by Surgeon I. Moses, U. S. Vols

825. The bones of the left knee, fractured by a musket ball passing transversely through the joint knocking off pieces
g. 6. of the condyles and the articular surface of the tibia on the posterior border. The articular surfaces are eroded.

Private W. W., "C," 51st Georgia (Rebel): South Mountain, 14th September; at the patient's request, amputation was not performed, but joint laid open, Frederick, 4th October; died, 14th October, 1862.

Contributed by Acting Assistant Surgeon J. H. Bartholf.

1202. The bones of the right knee. A conoidal ball chipped the upper and posterior aspect of the inner condyle of the
g. 7. femur and passed out beneath the outer condyle, opening the joint. The articulating surfaces are thoroughly carious and partly absorbed. The posterior aspect of the shaft of the femur is necrosed for several inches, bordered by a moderate osseous deposit.

Private A. L., "C," 16th Maine: Fredericksburg, 13th December; joint freely opened, pus evacuated and fragments removed by Assistant Surgeon J. B. Bellangee, U. S. Vols., Alexandria, 19th December, 1862; died, 21st January, 1863.

Contributed by the operator.

735. A wet preparation of the left knee. A bullet (probably round) entered the joint obliquely from the front,
g. 8. fractured the articular face of the inner condyle internally and grooved the corresponding head of the tibia. The patella is also dislocated outward.

Private W. H. C., 8th Massachusetts Battery, 18: Antietam, 17th September; at the patient's urgent solicitation the limb was allowed to remain on; joint was opened posteriorly for escape of pus; when first examined by the contributor his condition would not permit amputation; died, 30th October, 1862.

Contributed by Surgeon T. H. Squire, 89th New York.

601. A small fragment of the inner condyle, removed after a fracture of the right knee.
g. 9. Private W. H., "B," 79th New York, 24: Wilderness, 9th May; admitted hospital, Washington, 14th; specimen removed, 15th May; died from typhoid fever, 3d June, 1864.

Contributed by Surgeon O. A. Judson, U. S. Vols.

1065. The inner half of the right patella, in two fragments.
g. 10. Private O. D., "I," 1st Maine Heavy Artillery, 30: Spottsylvania, 19th May; admitted hospital, Washington, 22d; specimen removed by Surgeon N. R. Mosely, U. S. Vols., 23d May; died, 10th June, 1864.

Contributed by the operator.

h. Stumps.

467. The lowest third of the right femur. The patella and tibia, which are wanting, were probably injured. The
h. 1. extremity is much eroded by suppuration.

Private W. L., "A," 1st Missouri Artillery, 40: wounded on Ram "Queen of the West," and leg amputated at the knee joint, date unknown; died, St. Louis, 27th October, 1862.

Contributed by Surgeon J. T. Hodgen, U. S. Vols.

See class **XIV.** A. B. e.

1240. The lowest portion of the right femur, from a field amputation. Profuse suppuration occurred from the stump
h 2. and the thigh became honeycombed with sinuses. The cartilages entirely disappeared and only the integument covered the bone. The patella was removed in the operation. The patient was enfeebled by chronic diarrhœa before and afterward, and by hæmorrhage at the time of the operation.

Private W. S., "H," 53d Pennsylvania: Fredericksburg, 13th December; the tibia was extensively comminuted in the upper third by a conoidal ball; disarticulation of the knee, 14th; admitted hospital, Washington, 26th December, 1862; died from exhaustion, 26th April, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See class **XIV.** A. B. e.

B. Injuries not caused by Gunshot.

A. Primary conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Excisions.
- d. Disarticulations.
- e. Amputations in the femur.
- f. Other operations.

e. Amputations in the Femur.

3470. The bones of the right leg, terribly comminuted by the wheels of a train of cars.
e. 1. Private P. O'R., 40: "F," 5th New York Heavy Artillery; both legs horribly mutilated by a train of cars, near Baltimore, 5th November; admitted hospital and the right thigh amputated in its middle third by Surgeon Thomas Sim, U. S. Vols.; sank so rapidly as to forbid operation on the other leg; died the same day.

Contributed by the operator.

2455. The lowest third of the left femur and the patella. The patella is nearly vertically fractured. The lowest fourth
e. 2. of the femur is shattered, both in the shaft and condyles. The line of amputation has passed through a small exostosis.

J. M., discharged from a Minnesota Regiment: leaped from a second-story window twenty feet, in an attack of delirium tremens, New Brighton, Penna., 9th January, 1866; primarily amputated by Dr. D. Stanton, late Surgeon, U. S. Vols. Recovered.

Contributed by the operator.

See class **XIII.** C.

B. Secondary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Dislocations.
- d. Caries consecutive upon other injury than fracture of the bones of the joint.
- e. Excisions.
- f. Disarticulations.
- g. Amputations in the femur.
- h. Other operations.
- i. Stumps.
- k. Sequestra.

b. Complete Fractures.

2098. The upper half of the right tibia. The head is badly broken by longitudinal fractures extending down the shaft.
b. 1. H. P., Brakeman, N. V. Ch. R. R.: jammed by cars at Bridgeport, Ala., 8th January; died, 16th January, 1864.
Contributed by Assistant Surgeon Henry T. Legler, U. S. Vols.

3183. A wet preparation of the left knee. The patella was fractured in its internal inferior region by the kick of a
b. 2. horse and has united. The joint is completely anchylosed. At the autopsy numerous sinuses were found running from the joint, as well as many old ones healed.

Private P. S. K. L., "H," 3d Pennsylvania Artillery, 32: admitted hospital, Baltimore, 15th March; died from suppurative fever, 3d August, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

d. Caries.

See 2004, **XIV.** B. B. g. 1; 2234, **IV.** B. B. g. 2.

g. Amputations in the Femur.

2004. The lowest third of the left femur, amputated on account of inflammation of the knee following an incised wound
g. 1. by an axe two inches above the patella.

Private C. W., 8th Independent Company Infantry, New York Volunteers: near Alexandria, 26th September; amputation performed by Surgeon D. P. Smith, U. S. Vols., 4th October, 1863. Recovered.

Contributed by the operator.

See class **XIV.** B. B. d.

2234. The bones of the right knee, showing the articular surface destroyed by inflammation following an incised wound
g. 2. by an axe.

Artificer O. F. R., "B," U. S. Engineers: wounded, 12th March; admitted hospital, 21st March; thigh amputated in lowest third, 24th April; died, 1st May, 1864.

Contributed by Surgeon E. Bentley, U. S. Vols.

See class **XIV.** B. B. d.

For other illustrations, see 4556, **XIII.** C. 6.

k. Sequestra.

See 4711, **XXIII.** B. D. 6.

C. Diseases.

914. The bones of the right knee, after amputation for scrofulous disease of eight months' standing. The articular
C. 1. surfaces are carious, above which are a few feeble indications of attempts at new osseous formations.

W. T., colored, 16: admitted hospital, Washington, 1st November, 1866; amputated in the lowest third of the thigh by Brevet Lieutenant Colonel R. Reyburn, Surgeon, U. S. Vols., 6th February, 1867. Doing well four weeks afterward.

Contributed by the operator.

3079. The bones of the left knee, after amputation for a scrofulous abscess of the joint. The articular surface of the
C. 2. tibia and parts of the femoral cartilage are eroded and carious.

H. H. (colored): admitted hospital, Washington, October, 1866; amputated in the middle third of the thigh by Brevet Lieutenant Colonel Robert Reyburn, Surgeon, U. S. Vols., 13th March, 1867.

Contributed by the operator.

For other illustrations, see 4556, **XIII.** C. 6; 1220, **XXV.** C. A. 1.

XV. INJURIES AND DISEASES OF THE BONES OF THE LEG, INVOLVING NEITHER ARTICULATION.

- **A.** Gunshot Injuries.
  - **A.** Primary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Excisions.
    - d. Amputated fractures.
    - e. Other operations.
  - **B.** Secondary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Excisions.
    - d. Amputated fractures.
    - e. Other operations.
    - f. Stumps.
    - g. Sequestra.
- **B.** Injuries not caused by Gunshot.
  - **A.** Primary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Excisions.
    - d. Amputated fractures.
    - e. Other operations.
  - **B.** Secondary Conditions.
    - a. Contusions and partial fractures
    - b. Complete fractures.
    - c. Excisions
    - d. Amputated fractures.
    - e. Other operations.
    - f. Stumps.
    - g. Sequestra.
- **C.** Diseases.

XV. BONES OF THE LEG.

A. Gunshot Injuries.

A. Primary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Excisions.
- d. Amputated fractures.
- e. Other operations.

b. Complete Fractures.

2520. b. 1. The lower halves of the bones of the left leg. The tibia is comminuted in the lowest third. The fibula is transversely fractured and this is evidently one of that large class of cases where the smaller bone is broken, not by the missile, but by the weight of the body.
Contributor and history unknown.

1415. b. 2. The two lower thirds of the bones of the right leg, chiefly interesting on account of partial fracture ("willow") of the fibula, evidently due to the weight of the body when the tibia had been comminuted in the middle third.
Contributor and history unknown.

2519. b. 3. The lower halves of the left tibia and fibula, from a young subject. The tibia has been perforated, causing comminution, about three inches above the ankle, and the fibula has snapped evidently consecutively.
Received after Chancellorsville.

4019. b. 4. Parts of the shafts of the bones of the right leg. The fibula was transversely fractured after the tibia was splintered by a bullet entering from the inside.
Contributed by Assistant Surgeon S. Adams, U. S. Army.

3149. b. 5. The lower portions of the bones of the right leg, with the tibia shattered and the fibula transversely fractured just above the ankle.
Received from the Army of the Potomac.

3274. b. 6. The bones of the right leg, of which the tibia is obliquely fractured in the upper third and the fibula, with loss of substance, in the lower part of the middle third.
Received from Winchester.

480. b. 7. The left tibia, transversely fractured, with some comminution and, in the middle third, longitudinal fissuring, and the fibula fractured in four distinct places.
Contributed by Surgeon W. H. Leonard, 51st New York.

2550. b. 8. The bones of the left leg. The tibia is fractured, with comminution, at the middle third, and the fibula is fractured in two places.
E. C.
Contributor and history unknown.

c. Excisions.

1982. c. 1. Two and one-fourth inches of the shaft of the left fibula, excised.
Private W. L., "H," 148th Pennsylvania, 21: probably Ream's Station, Va., 25th August; admitted hospital, Washington, 28th; excised by Surgeon N. R. Mosely, U. S. Vols., 29th August, 1864.
Contributed by Acting Assistant Surgeon J. M. Downs.

1910. Two and a half inches of the shaft of the fibula, excised.
c. 2. Private G. F., "H," 19th Maine, 18: Ream's Station, Va., 25th August; admitted hospital, Washington, 28th August, 1864; excised by Surgeon N. R. Mosely, U. S. Vols; returned to duty, (probably for muster-out,) 3d February, 1865.
Contributed by Acting Assistant Surgeon J. M. Downs.

2867. The upper half of the right tibia, fractured in the upper third. Two inches of the shaft were resected on the field.
c. 3. In the specimen the extremities are somewhat irregularly necrosed.
Sergeant L. H., "D," 2d Michigan, 22: Petersburg, 18th June; admitted hospital, Washington, 1st July; amputated in the lowest third of thigh, 7th; died from pyæmia, 28th July, 1864.
Contributed by Assistant Surgeon Alex. Ingram, U. S. Army.
See class **XV.** A. B. d.

1307. Four and a half inches of the lowest third of the tibia, with a fragment of bullet, excised for fracture. A part of
c. 4. the specimen was lost before transmission. The bone was removed to within an inch of the ankle joint.
Private H. M. G., "C," 160th New York, 24: Port Hudson, La., 27th May; admitted hospital and operation performed by Assistant Surgeon P. S. Conner, U. S. Army, New Orleans, 30th May, 1863.
Contributed by the operator.
See class **XXVII.** B. B. d.

1584. Five and one-fourth inches from the upper third of the tibia, excised on account of a perforating comminuted
c. 5. fracture.
Contributor and history unknown.

3546. The bones of the left leg, amputated in the upper third after an exsection of six inches of the shaft of the tibia,
c. 6. made on the field for fracture by a conoidal ball.
Private P. O'R., "F," 7th New York Heavy Artillery: Cold Harbor, Va., 30th May; admitted hospital, Washington, 4th; amputated, 5th June, 1864. Recovered.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.
See class **XV.** A. B. d.

4146. Six and one-half inches, excised from the right tibia just below the knee for shattering by a conoidal ball which
c. 7. remains lodged, battered.
Private W. C., "K," 1st Pennsylvania.
Contributed by Surgeon J. J. Comfort, 1st Pennsylvania.

For other illustrations, see 2801, **XIV.** A. B. e. 1; 2237, **XV.** A. B. g. 10.

d. Amputated Fractures.

490. The left tibia and fibula, amputated in the middle third. The fibula, just above the malleolus, and the tibia, two
d. 1. inches above the joint, are transversely fractured by a conoidal ball which is attached. There is no history, but the case is noteworthy in the absence of comminution following fracture by such a missile.
Contributed by Assistant Surgeon G. M. McGill, U. S. Army.
See class **XXVII.** B. B. d.

3245. The lower halves of the right tibia and fibula, amputated for a fracture of both bones in the lowest third. The
d. 2. conoidal ball remains attached. This man had also an extensive flesh wound of the right thigh and a fracture of the metatarsal bones of the left foot.
Private B. F. M., "A," 1st New Hampshire Heavy Artillery: accidentally wounded, admitted to hospital, operated upon, and died, 14th September, 1864.
Contributed by Surgeon R. B. Bontecou, U. S. Vols.
See class **XXVII.** B. B. d.

1122. The bones of the right leg, fractured, with transverse comminution, in the lowest fourth and amputated in the
d. 3. middle third by Dr. D. Duffy.
Contributed by the operator.

1260. The lower halves of the bones of the right leg. The tibia was shattered in the lowest third and the fibula
d. 4. fractured nearly transversely. Amputated in the middle third by Surgeon St. John W. Mintzer, U. S. Vols.
Contributed by the operator.

313. The left tibia, shattered in the middle third by a musket ball, and the fibula, fractured by the subject's weight
d. 5. coming suddenly upon it.

Brigadier General G. W. T., U. S. Vols.: Second Bull Run, 27th August; amputated in the middle third by Surgeon J. H. Brinton, U. S. Vols., within six hours; admitted hospital, Washington, in thirteen hours; died, exhausted, 1st September, 1862.

Contributed by the operator.

4028. The bones of the right leg, after amputation in the middle for a comminuted fracture of the lowest third of the
d. 6. tibia. The missile, a fragment of a large shell, with pieces of the subject's boot and trowsers taken from the wound, accompany the specimen.

Contributed by Assistant Surgeon S. Adams, U. S. Army.

See class **XXVII.** B. A. c.

4141. A section of the bones of the left leg, amputated for comminution.
d. 7. Private J. K., "H," 107th Pennsylvania: amputated by Surgeon J. F. Hutchins, 107th Pennsylvania.
Received from the Army of the Potomac.

1809. The left tibia shattered and the fibula fractured in their lower thirds, with laceration of both tibial arteries.
d. 8. D. R., (colored): accidentally shot and amputated in the upper third, 14th May, 1863. Recovered.
Contributed by Surgeon A. Heger, U. S. Army.

1146. The left tibia and fibula, fractured in the middle third by a conoidal ball and amputated in the upper third.
d. 9. Private E L., 22d New York: amputated by Assistant Surgeon J. T. Duffield, 7th Indiana. Recovered.
Contributed by Surgeon E. Shippen, U. S. Vols.

4032. The right tibia shattered and the fibula fractured in the lowest and amputated in the upper third.
d. 10. Supposed to be the case of Corporal L. G. P., "E," 17th North Carolina (Rebel): wounded by a conoidal ball which escaped on the inside of the thigh; amputated by Surgeon D. C. Roundy, 37th Wisconsin.

Contributed by Assistant Surgeon S Adams, U. S. Army.

3829. The lower halves of the bones of the left leg. The tibia is badly comminuted throughout the lowest third, and
d. 11. the fibula is transversely fractured.

Private G. H., "E," 110th Ohio, 45: Monocacy, Md., 9th July; admitted hospital, Frederick, 10th; amputated just below the knee, 11th; gangrene, 20th July; secondary hæmorrhage, 4th August; died, 8th August, 1864.

Contributed by Acting Assistant Surgeon W. S. Adams.

See class **XXIII.** A. B.

3314. The right tibia and fibula, shattered at the junction of the upper thirds and amputated below the knee. The
d. 12. fibula presents a marked longitudinal fracture.

Private J. S., "B," 13th Tennessee Cavalry, 15: Fort Pillow, 12th April; amputated by Surgeon H. Wardner, U. S. Vols., 16th; died, exhausted, 29th April, 1864.

Contributed by the operator.

3158. The left tibia, badly fractured in the upper third by a conoidal pistol ball. Primary amputation was performed
d. 13. below the knee.

Private J. T., "I," 1st New Jersey Cavalry: accidentally, 29th August, 1864; severe hæmorrhage followed a wound of the posterior tibial; amputated by Surgeon A. Hard, 8th Illinois Cavalry.

Contributed by the operator.

4002. The shafts of the left tibia and fibula, of which the former is shattered in the middle third by perforation by a
d. 14. musket ball. Primary amputation below the knee was probably performed.

Private J. W. C., "H," 25th North Carolina (Rebel): Petersburg, 1st April, 1865.

Contributed by Assistant Surgeon S. Adams, U. S. Army.

4579. A portion of the shaft of the left tibia, obliquely fractured, with comminution in the upper third, and amputated
d. 15. just below the knee.

Private O. McD., "M," 1st Massachusetts Artillery, 30: Petersburg, 20th June; primarily amputated by Surgeon C. C. Jewett, 16th Massachusetts; died, Washington, 17th July, 1864.

Contributed by the operator.

4152. The bones of the right leg, amputated in their upper thirds for transverse fractures, with some comminution of
d. 16. both in middle thirds.

G. B., Quartermaster's Department: ordnance explosion, City Point, 9th August, 1864; primary amputation by Assistant Surgeon J. T. Calhoun, U. S. Army.

Contributor and further history unknown.

4156. Sections of the left tibia and fibula, shattered by a conoidal ball in the upper thirds and amputated below the knee.
d. 17. Private E. B., "C," 12th Mississippi (Rebel): amputated by Surgeon A. A. White, 8th Maryland.
Contributor and history unknown.
See class **XXVII.** B. B. d.

179. The bones of the left leg, amputated in the upper third for a comminuted fracture of both bones in the middle by
d. 18. a conoidal ball entering from behind. The bullet appears to have entered from the right, and to have passed obliquely upward, through the medullary canal of the tibia, which bone it has shattered longitudinally.
Private R. A. H., "H," 155th Pennsylvania, 20: near Rockville, Md., 14th September; admitted hospital and amputated by Acting Assistant Surgeon W. H. Butler, Georgetown, 15th September, 1862. Recovered.
Contributed by the operator.

3166. The left fibula transversely fractured and the tibia shattered in the upper third, amputated just below the knee.
d. 19. Private J. M., "G," 9th Veteran Reserve Corps, 33: near Washington, 11th July; admitted hospital and amputated the same day; died from exhaustion, 28th July, 1864.
Contributed by Acting Assistant Surgeon A. W. Merrill.

4018. Bones of the left leg, fractured in the upper third by a ball perforating the tibia transversely and completely
d. 20. destroying the upper part of the fibula.
Believed to be the case of Private J. W., "A," 57th Massachusetts: Petersburg; amputated below the knee, on the field, March, 1865.
Contributed by Assistant Surgeon S. Adams, U. S. Army.

553. The right tibia and fibula, each transversely fractured in two places and amputated in their upper thirds.
d. 21. Contributed by Assistant Surgeon Warren Webster, U. S. Army.

4153. The bones of the right leg, amputated just below the knee for comminuted fractures in their middle thirds. The
d. 22. fibula is also independently transversely fractured in the lowest third.
A. G., Quartermaster's Department: ordnance explosion, City Point, 9th August, 1864; primarily amputated by Assistant Surgeon W. Blundell, 3d New Jersey.
Received from the Army of the Potomac.

692. The right tibia, shattered in the middle third by grape shot, and the fibula partially fractured (willow fracture,
d. 23. probably by subject's weight,) and amputated in the upper thirds, at Hilton Head, S. C.
Contributed by Assistant Surgeon J. C. Semple, U. S. Army.

1883. The upper halves of the bones of the left leg. The tibia is shattered just below the head, and this is one of the
d. 24. few cases in which the fibula was not consecutively broken by the weight of the subject.
Private G. A. B., "F," 72d Pennsylvania: Milton's Mills, Va., 27th November; amputated in the thigh by Surgeon Martin Rizer, 72d Pennsylvania, 28th November; removed to Washington, 4th December, 1863.
Contributed by Surgeon J. Dwinelle, 106th Pennsylvania.

731. The left tibia, comminuted by grape shot in the upper third, with the fibula transversely fractured, probably by the
d. 25. subject's weight. Amputated in the thigh.
Contributed by Assistant Surgeon J. E. Semple, U. S. Army.

4145. The left tibia and fibula, comminuted in the upper thirds.
d. 26. Private P. L., "D," 11th Pennsylvania: amputated in the lowest third of the femur by Surgeon J. W. Anawalt, 11th Pennsylvania.
Contributor and history unknown.

4119. The bones of the right leg, shattered at the junction of the upper thirds.
d. 27. Private J. M. B., "B," 99th Pennsylvania: amputated in the lowest third of the thigh by Surgeon N. A. Hersome, 17th Maine, 17th November, 1864.
Contributor and history unknown.

2236. The upper portion of the right fibula, fractured three and a half inches below the head by a bullet which also
d. 28. destroyed the anterior and posterior tibial arteries. This case is remarkable on account of the arrest of extensive sphacelus of the stump by local application of bromine. The subject ultimately died of tetanus after recovering from the effects of the disease.

Captain W. E. D., "B," 30th North Carolina, (Rebel,) 25: Kelly's Ford, Va., 7th November; admitted hospital, Washington, 9th; amputated in the lowest third of the thigh by Assistant Surgeon W. Thomson, U. S. Army, 10th; severe attack of sphacelus successfully resisted by local application of bromine, 11th–20th; died from tetanus, 22d November, 1863.

Contributed by Acting Assistant Surgeon Carlos Carvallo and the operator.

See class **XIII.** A c.

1335. The right tibia and fibula, comminuted in their shafts by a round shot. *See figure* 127.
d. 29. Major General D. E. S., U. S. Vols.: Gettysburg, 2d July; amputated in the lowest third of the thigh by Surgeon T. Sim, U. S. Vols., on the field; stump healed rapidly and subject was able to ride in a carriage, 16th July; completely healed, so that he mounted his horse early in September, 1863.

Contributed by the subject.

See 4627, **XXVI.** A. 1, 43.

FIG. 127. Bones of right leg fractured by round shot. *Spec.* 1335.

4510. The middle thirds of the shafts of the bones of the right leg, after primary amputation for
d. 30. comminution of both.

Private R. T. S., "F," 2d Pennsylvania Reserves, 19: Spottsylvania, 12th May; amputated on the field by Dr. Roher; admitted hospital, Washington, 16th May; died from exhaustion, 3d June, 1864.

Contributed by the operator.

4512. The upper halves of the bones of the left leg, after primary amputation in the lowest third
d. 31. of the thigh. The tibia is shattered in the upper third, with longitudinal fractures for five inches.

Private W. J. P., "A,' 7th —— Cavalry, (Rebel,) 24: amputated by Surgeon F. F. Burmeister, 69th Pennsylvania; died en route to hospital.

Contributed by the operator.

4511. The middle thirds of the bones of the right leg, after primary amputation by antero-
d. 32. posterior flap in the upper third. The tibia is shattered for six inches, and the fibula is fractured.

Lieutenant J. B. R., "C," 2d Pennsylvania Reserves, 32: Spottsylvania, 12th May, 1864; amputated by Surgeon Bowers. Recovered.

Contributed by the operator.

4497. The lower halves of the bones of the right leg, after a primary amputation in the middle third for fracture above
d. 33. the joint. A split and battered conoidal ball is lodged in the tibia, which is shattered for four inches. The fibula is comminuted for one inch.

Sergeant W. W. H., "I," 93d New York, 20: Wilderness, 5th May; leg amputated by Surgeon Harris, 6th; thigh amputated in lowest third, 16th May, 1864; carious bone removed from the stump, Troy, N. Y., 5th April; discharged the service, 12th July; artificial limb furnished, 23d August, 1865.

Contributed by the operator.

See classes **XV.** A. B. d.; **XXVII.** B. B. d.

4540. The lower portions of both bones of the right leg, comminuted above the ankle after primary amputation in the
d. 34. upper thirds.

Private W. W., "E," 7th Michigan, 24: Spottsylvania, 18th May; amputated in the field, 21st May; discharged the service, 29th December, 1861.

Received from the Army of the Potomac.

4547. The upper portions of the bones of the right leg, with the tibia partially fractured at the tuberosity by the lateral
d. 35. passage of a bullet. The articular surface was not involved.

Corporal E. H., "G," 115th Pennsylvania, 37: Spottsylvania, 12th May; amputated in the lowest third of the thigh the same day; admitted hospital, Washington, 25th May; died, 8th June, 1864.

Contributed by Surgeon C. C. Jewett, 16th Massachusetts.

665. The upper portion of the right tibia, perforated below the head and shattered in the shaft for six inches.
d. 36. Private J. S., "C," 53d Pennsylvania, 20: Cold Harbor, 3d June; amputated in the thigh the same day by Surgeon Geo. L. Potter; admitted hospital, Washington, 12th; died, 24th June, 1864.

Contributed by the operator.

For other illustrations, see 3573, **XIII.** A. B. f. 26; 2965, **XIII.** A. B. f. 69.

B. Secondary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures
- c. Excisions.
- d. Amputated fractures.
- e. Other operations.
- f. Stumps.
- g. Sequestra.

a. Contusions and Partial Fractures.

74. a. 1. The shaft of the right tibia, contused by shell at the First Bull Run, 21st July, 1861; admitted hospital, Washington, two months afterward, with the knee distended with pus and too exhausted to suffer an operation. The specimen shows general periostitis and local necrosis.

Contributed by Acting Assistant Surgeon D. W. Cheever.

2196. a. 2. The left tibia, without fracture, bearing marks of periostitis on its lowest third, apparently after a contusion. Contributor and history unknown.

2109. a. 3. The left fibula, contused at the junction of the lower thirds The shaft is locally necrosed at the point of impact, adjacent to which is periosteal thickening. This subject was at the same time wounded through both legs and slightly in the left shoulder. Hæmorrhage from the left leg was controlled by pressure.

Private W. L., "I," 10th Missouri: Missionary Ridge, 25th November, 1863; died from pyæmia (?), (pneumonia? history obscure,) Chattanooga, 19th January, 1864.

Contributed by Acting Assistant Surgeon C. E. Ball.

815. a. 4. The upper portions of the bones of the left leg. A conoidal ball has gouged out the anterior surface of the tibia just below the tubercle. Subject "died from exhaustion from a bed sore," complicated with double pneumonia.

Private J. S., "I," 27th North Carolina (Rebel): Antietam, 17th September, 1862.

Contributed by Assistant Surgeon Philip Adolphus, U. S. Army.

1314. a. 5. The bones of the right leg, with a partial fracture of the tibia in the upper third, six months after injury. The interior is carious, and the orifice is raised by a deposit of callus around it.

Private C. S., "B," 59th New York, 17: probably Fredericksburg, 13th December; admitted hospital, Washington, 24th December, 1862; died from exhaustion, 8th June, 1863.

Contributed by Surgeon G. S. Palmer, U. S. Vols.

2187. a. 6. The upper portion of the left tibia, six weeks after injury. The specimen was perforated by a round bullet downward, from front to rear, causing a partially oblique fracture. There is but the faintest trace of an attempt at repair. The limb was gangrenous at death. The missile, flattened, is attached.

Sergeant T. B. O., "B," 34th Mississippi (Rebel): Lookout Mountain, 25th November, 1863; died, Nashville, 12th January, 1864.

Contributed by Acting Assistant Surgeon P. Peter.

See class **XXVII.** B. b. d.

3590. a. 7. The left fibula, three months after injury. The wound is said to have been in the foot. The shaft of the fibula is necrosed nearly its entire length, and a slight involucrum of callus covers one portion. There was a fracture of the humerus.

Private J. H. R., "I," 17th Maine, 46: wounded, 16th May; admitted hospital, Washington, 18th May; died from exhaustion, 15th August, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

2053. a. 8. The right tibia, two and a half months after a partial fracture below the head on the inner surface. From this point, following a curved line six inches down the shaft, the laminated structure has been absorbed for an average width of half an inch, as though in the track of a fissure. The adjacent osseous tissue is carious.

Second Lieutenant H. G. W., "K," —— North Carolina (Rebel): Gettysburg, 2d July; died from pyæmia, Chester, Penna., 21st September, 1863.

Contributed by Acting Assistant Surgeon B. F. Strawn.

1269. a. 9. The bones of the right leg, six weeks after injury. The tibia sustained a longitudinal partial fracture of the shaft and is necrosed its greater length.

Private A. C. C., "D," 7th Ohio: Chancellorsville, 3d May; on the field until 14th May; died from pyæmia, 13th June, 1863.

Contributed by Assistant Surgeon O. G. Field, 5th Ohio

3355. The upper half of the left tibia, with several sharply defined and curiously arranged fissures extending through
a. 10. the compact portion. The parts adjacent to the fissures are dead, but below these borders slight periosteal deposit has occurred.

Contributor and history unknown.

1916. The bones of the left leg, five months after injury. The tibia appears originally to have been contused by a
a. 11. musket ball. Erysipelas first and gangrene afterward reduced the subject exceedingly. A considerable portion of the tibia is necrosed. The diseased portion is encircled with a fringe of callus.

Corporal T. C., "H," 21st Michigan, 35: Stone River, 1st January; died, in Nashville, 1st June, 1863.

Contributed by Assistant Surgeon C. C. Gray, U. S. Army.

2022. The two lower thirds of the bones of the left leg. The tibia has been partially fractured in the lowest third. An
a. 12. abundant involucrum has been formed to nearly the point of section, exhibiting through the cloacæ a large sequestrum detached but imprisoned. A few points of osseous deposit are seen on the fibula, which is uninjured.

Contributed by Surgeon J. A. Lidell, U. S. Vols.

3003. The right fibula, two and a half months after injury. The bone was partially fractured on the posterior surface.
a. 13. A fair amount of callus had been effused, but much of it has evidently been destroyed by suppuration following gangrene.

Private W. S., "B," 4th South Carolina Cavalry, (Rebel,) 37: Hawe's Shop, Va., 28th May; admitted hospital, Washington, 6th June; died, 11th August, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean

See class **XXIII.** A. B.

103. The shaft of the left tibia, fissured longitudinally by a musket ball striking the middle third. Necrosis has followed
a. 14. the induced periostitis.

Contributor and history unknown.

783. The lower halves of the bones of the right leg. The tibia has been struck by a bullet at the junction of the
a. 15. lower thirds and a longitudinal section is split loose. The specimen beautifully shows how a chain-work of callus has woven the fragment again to the shaft in its lower portion. Reparative action in the upper part is less in degree.

Contributed, without history, by Acting Assistant Surgeon W. W. Keen, jr.

3588. The left tibia, two and a third months after injury. An iron ball (case?) fractured longitudinally the anterior
a. 16. border of the tibia for three inches. Necrosis has destroyed the greater portion of the shaft.

Corporal P. D., "K," 164th New York, 48: Cold Harbor, 3d June; admitted hospital, Washington, 24th June; died, exhausted, 14th August, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

799. The upper thirds of the left tibia, exhibiting a longitudinal fracture, with loss of substance of the inner and
a. 17. posterior portion of the shaft, which did not pass entirely through the bone. There is a feeble periosteal deposit adjoining the bony edges. The broken portion has not been preserved.

Private L. S. G., "K," 145th Pennsylvania, 22: Gettysburg, 2d July; admitted hospital, Philadelphia, 13th July; died from exhaustion after hæmorrhage from the popliteal artery, 14th August, 1863.

Contributed by Acting Assistant Surgeon Wm. V. Keating.

1468. The upper portions of the bones of the left leg. The tibia exhibits an oblique partial fracture in the upper third
a. 18. with longitudinal splintering. The ball struck from above and behind, and the specimen well illustrates the tendency of the fracture to be propagated in the direction of the force. The borders of the fracture are necrosed.

Contributed by Surgeon J. H. Brinton, U. S. Vols.

3609. The left tibia, four months after injury. The periosteum was injured by a bullet, and, after two weeks, gangrene
a. 19. supervened denuding the bone. The specimen shows one longitudinal half of the bone necrosed and nearly separated, with the other portion sheathed with callus.

Private J. B., "A," 16th Michigan, 26: Petersburg, 30th September; admitted hospital, Washington, 7th October, 1864; died, exhausted, 26th January, 1865.

Contributed by Surgeon R. B. Bontecou, U. S. Vols.

344. The lower portion of the left tibia, indented, without comminution, on the anterior surface, by a pistol ball which
a. 20. lodged just above the ankle joint. The missile was firmly embedded and was extracted with difficulty five days after the injury. The anterior tibial nerve was compressed but not lacerated, and the subject died thirty-six hours after the removal of the buliet.

Private J. B. S., "F," 2d New York: accidentally shot; died of tetanus, 20th July, 1861.

Contributed by Assistant Surgeon J. W. S. Gouley.

For other illustrations, see 4215, **XIV.** A. B. f. 187; 2793, **XV.** A. B. d. 7; 212, **XV.** A. B. d. 35; 1920, **XV.** A. B d. 38; 589, **XV.** A. B. d. 51; 917, **XV.** A. B. d 53; 3319, **XV.** A. B. d. 66; 3468, **XV.** A. B. d. 71; 2228, **XV.** A. B. d. 80; 858, **XV.** A. B. d. 104; 3853, **XV.** A. B. g. 18; 989, **XV.** A. B. g. 20; 4250, **XV.** A. B. g. 29; 420, **XV.** A. B. g. 34; 4337, **XV.** A. B. g. 37.

b. Complete Fractures.

3521. b. 1. The left tibia and fibula. The tibia is obliquely fractured, with a little comminution in the lowest fourth, and the fibula is fractured in the upper third. The missile was removed on the field and its character does not appear. Two were probably employed.

Private J. H. R., "H," 105th Pennsylvania, 40: wounded, 6th May; admitted hospital, Washington, 11th; died from exhaustion, 17th May, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

1831. b. 2. The bones of the right leg, with the tibia very obliquely fractured throughout the lowest third. The borders of the fracture are necrosed, and a certain amount of callus has been deposited, but no union whatever has occurred. Received, without history, from Gettysburg.

3207. b. 3. The left fibula, three months and a half after injury. The bone was shattered in the lowest third by a conoidal ball. Callus was effused so as to firmly unite the broken parts without shortening, but with some lateral deformity from the position of the fragments.

Private E. T., "C," 20th Massachusetts: Spottsylvania, 10th May; admitted hospital, Washington, 26th May; died from typhoid fever, while convalescent from the wound, 29th August, 1864.

Contributed by Acting Assistant Surgeon F. G. H. Bradford.

3164. b. 4. The right tibia, comminuted in the lowest third, complicated with a flesh wound of the left leg. A small exostosis is seen on the lower extremity of the specimen.

Private F. K., "A," 12th Mississippi, (Rebel,) 43: wounded, 21st August; admitted hospital, Washington, 24th; died from tetanus, 30th August, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

See class **XV.** C.

3928. b. 5. The lower two-thirds of the bones of the right leg. There is a slight contusion of the fibula with a small exfoliation. The tibia is fractured with comminution in the lowest third. There has been a moderate deposit of callus and much necrosis.

Private E. H. L., "F," 14th Virginia.

Received, without history, from Frederick.

721. b. 6. The lowest thirds of the left tibia and fibula. The fibula has been fractured nearly transversely and has partially united with some anterior displacement. The tibia has been fractured with comminution. The bulk of the shaft at the point of fracture is carious, but posteriorly the fragments have been held together by callus.

Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

2750. b. 7. The lower halves of the bones of the left leg, with the fibula comminuted, with loss of substance in the lowest third.

Private H. N. W., "D," 19th Maine: Gettysburg, 2d July; admitted hospital, Philadelphia, 8th July; secondary hæmorrhage and anterior tibial ligated by Acting Assistant Surgeon F. F. Maury, 12th; died from pyæmia, 18th July, 1863.

Contributed by the operator.

1828. b. 8. The lower portion of the bones of the left leg. The tibia has been shattered in its lowest third without union. Fringes of callus have been deposited, and a portion of the bone is separated by necrosis.

Received, without history, from Gettysburg.

751. b. 9. The lower portions of the bones of the right leg, with ununited comminuted fractures in the lower thirds. A large amount of callus has been effused, and fragments are attached to the fibula, but the broken tibia is carious within.

Contributed, without history, by Assistant Surgeon W. Moss, U. S. Vols.

3344. b. 10. The left tibia, twenty-four days after injury. The bone is transversely fractured in the middle third. No union has occurred and no deposit of callus. The parts immediately adjoining are necrosed, and a degree of periostitis over the bone has existed.

Private A. V., "I," 1st Maine Heavy Artillery: Petersburg, 18th June; admitted hospital, Alexandria, 29th June; died, exhausted, 12th July, 1864.

Contributed by Surgeon E. Bentley, U. S. Vols.

1914. The left fibula, one month after injury. The bone is slightly comminuted in its lowest third, but without displace-
b. 11. ment. There was no attempt at union, and the extremities of the fragments are necrosed.

Sergeant J. C., "D," 92d Ohio, 32: Chickamauga, 20th September; admitted hospital, Nashville, 4th October; died from pyæmia, 22d October, 1863.

Contributed by Assistant Surgeon D. M. Dill, 84th Illinois.

3774. The right fibula, fractured in its shaft without union. A small amount of callus has been effused and absorbed,
b. 12. and the bone has lost substance by suppuration.

Contributor and history unknown.

567. The upper half of the left fibula, three weeks after fracture in two places. The specimen is transversely fractured
b. 13. at the junction of the upper thirds, and obliquely about two inches above that point. There are traces of periostitis, and at the first-named fracture is a spot of local necrosis.

Private C. S., "B," 7th Maryland: probably South Side Railroad, 1st April; admitted hospital, Washington, 6th; secondary hæmorrhages, 10—14th; died from pyæmia, 20th April, 1865.

Contributed by Brevet Captain W. F. Norris, Assistant Surgeon, U. S. Army.

1071. The shafts of the bones of the left leg. The tibia was roughened, and about two inches of the fibula in the
b. 14. middle third was carried away by shell. There was also a bullet wound of the knee. Trismus presented itself a few hours after the injury.

Private W. H., "D," 28th Pennsylvania: probably Chancellorsville, 3d May; admitted hospital and died of tetanus, Washington, 7th May, 1863.

Contributed by Acting Assistant Surgeon C. H. Bowen.

See 1069, **XIV.** A. B. b. 31; 1070, **XXII.** A. A. a. 3; 1068, **XXII.** A. A. a. 4; 1067, **XXV.** A B. b. 149.

3769. A portion of the shaft of the right tibia, comminuted longitudinally with death of the parts along the lines of
b. 15. fracture, beyond which a small amount of callus has been thrown out.

Contributor and history unknown.

624. The left tibia, comminuted for six inches in the middle third. A fragment of a battered conoidal ball is attached
b. 16. to the specimen, which shows traces of periosteal inflammation.

Private J. W., 103d Pennsylvania.

Contributed by Assistant Surgeon S. A. Storrow, U. S. Army.

See class **XXVII.** B. B. d.

3891. The bones of the right leg, with an ununited fracture of the tibia in the middle third. The fibula appears to have
b. 17. been contused at the level of the fracture, where there is a necrosed portion of bone, with dead callus above and below. The tibia exhibits a large quantity of callus with caries and necrosis of the shaft.

Private S. B. M., "G," 6th Alabama, (Rebel,) 22: Antietam, 17th September, 1862; supposed to have died from exhaustion following hospital gangrene, winter 1862–'63.

Contributed by Acting Assistant Surgeon North.

See class **XXIII.** A. B.

3776. The lower portions of the right tibia and fibula, fractured and, after some repair by callus, nearly destroyed by
b. 18. suppuration.

Contributor and history unknown.

558. A portion of the fibula, with much callus, two months after injury. The bone was comminuted at the junction of
b. 19. the upper thirds, and the fracture has been bridged over at one border.

A. F.: probably Antietam, 17th September; died, Frederick, 20th November, 1862.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

1832. The bones of the right leg, with an united fracture of the tibia at the junction of the upper thirds. The tibia has
b. 20. been comminuted by gunshot, with the loss of many fragments. There is some necrosis of the extremities and a slight effusion of callus. The fibula is locally necrosed, as if from the lodgement of the missile.

After Gettysburg.

317. The bones of the left leg, ununited, after fracture in the middle third. A little callus has been thrown out about
b. 21. the transverse fracture of the fibula. The tibia is comminuted, with death of the larger fragments and a slight effusion of callus.

Contributed, without history, by Surgeon J. E. Summers, U. S. Army.

3336. The bones of the left leg, two and a half months after injury. The fibula was fractured in the upper third with
b. 22. loss of an inch and a half. The extremities support fringes of callus. The tibia is denuded of periosteum, although it was not touched by the bullet.

Private N. McN., "A," 70th New York: Spottsylvania, 12th May; admitted hospital, Washington, 29th May; died, 30th July, 1864.

Contributed by Surgeon E. Bentley, U. S. Vols.

1249. The upper halves of the bones of the right leg. The tibia was extensively comminuted in the upper third by a
b. 23. battered conoidal ball which was found, post mortem, to have compressed the lacerated posterior tibial vessels. The fibula is transversely fractured, as if by the weight of the body.

Private G. F. S., "A," 6th Maine, 30: Chancellorsville, 3d May; admitted hospital, Washington, in no condition for operation, 8th; died from exhaustion with gangrene, 16th May, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See classes **XXIII.** A. B.; **XXVII.** B. B. d.

1936. The lower thirds of the bones of the left leg, four months after injury. The tibia was fractured by a conoidal ball.
b. 24. Caries has invaded the shaft to a considerable degree, and a large portion is lost by suppuration. A large deposit of callus has occurred, and the bone is united on its external aspect. A sequestrum yet remains attached.

Private W. S., "K," 1st Louisiana, (Rebel,) 18: Gettysburg, 2d July; died, 3d November, 1863.

Contributed by Acting Assistant Surgeon E. P. Townsend.

1973. The right tibia, four months after perforation, without complete fracture, in the upper third by a conoidal ball.
b. 25. The bone gradually became carious and exfoliating. The callus, which was thinly deposited over the shaft for six inches, became diseased on the posterior surface.

Private F. M., "D," 146th New York, 21: Gettysburg, 2d July; died from exhaustion, 30th October, 1863.

Contributed by Acting Assistant Surgeon E. P. Townsend.

1270. The bones of the left leg, with severe ununited fracture in the upper third. The missile, a much battered conoidal
b. 26. ball, is lodged in the bone, which has made no effort at repair.

M. S.

Contributed by Assistant Surgeon D. H. Strickland, 111th Pennsylvania.

See class **XXVII.** B. B. d.

2138. The left tibia and fibula, shattered in their upper thirds. There is an abundant deposit of callus, without union, in
b. 27. the fibula. On the tibia callus is less marked, and there is great loss of tissue by suppuration.

Contributed, without history, by Surgeon I. Moses, U. S. Vols.

1018. The upper portion of the left fibula, consolidated by callus three months after fracture. The posterior tibial was
b. 28. obliterated by the injury.

Corporal F. D., "B," 81st Ohio: Corinth, 3d October; admitted hospital, St. Louis, 30th November, 1862; died from pyæmia, 14th January, 1863.

Contributed by Surgeon John T. Hodgen, U. S. Vols.

3549. The upper halves of the bones of both legs, with each tibia shattered in its upper third. Incipient necrosis is the
b. 29. only observable change.

Private J. G. M., "D," 17th Maine: Wilderness, 5th May; treated at Frederickburg, and admitted hospital, Washington, 25th May; died, exhausted, 31st May, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

1613. The upper third of the right tibia, four weeks after comminution on its posterior aspect by an explosive ball.
b. 30. Superficial necrosis occurs around the injury.

Sergeant J. L. F., 9th Massachusetts Battery: probably Gettysburg; died from pyæmia, Baltimore, 28th July, 1863.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

1803. The left tibia, shattered in the upper third without injury to the fibula. The broken extremities are carious, and
b. 31. a part of the substance must have been absorbed.

Received after Gettysburg.

4207. The bones of the right leg, with the tibia obliquely fractured, with comminution, in the upper third by a conoidal
b. 32. ball. The fragments in position are superficially necrosed.

Second Lieutenant W. H. G., 24th Georgia, (Rebel,) 27: Farmville, Va., 6th April; died with pyæmic symptoms, Baltimore, 7th May, 1865.

Contributed by Acting Assistant Surgeon W. G. Knowles.

652. The upper halves of the bones of the right leg, with an oblique and somewhat comminuted fracture of the tibia.
b. 33. There is no pathological change noticeable, except traces of periostitis.

Private J. B. H., "B," 142d Pennsylvania: Fredericksburg, 13th December; admitted hospital, Washington, 23d December, 1862.

Contributed by Surgeon Thomas Antisell, U. S. Vols.

866. The lower halves of the bones of the left leg, with the fibula perforated just above the malleolus by a conoidal
b. 34. ball that lodged in the tibia. There is some displacement of the fractured fibula, and its fragments are necrosed, as are the broken borders of the tibia. An oblique partial fracture extends upward several inches on the shaft of the tibia, and periosteal disturbance is observable the entire extent of the specimen in the fibula.

Private C. F., "B," 14th U. S. Infantry, 22: Gettysburg, 2d July; admitted hospital, Philadelphia, 13th; died of tetanus, 18th July, 1863. The posterior tibial nerve was lacerated. Amputation was not advisable at any time after the appearance of the disease.

Contributed by Acting Assistant Surgeon H. C. Yarrow.

1200. The bones of the left leg, with a fracture in the upper third of the tibia partially united posteriorly. A portion
b. 35. of the effused callus has been absorbed, the inner surface of the fracture is carious and, unless amputation in the thigh was performed, the man died from exhaustion.

Contributor and history unknown.

1812. The bones of the left leg, with an ununited fracture in the upper third of the tibia. There has been slight perios-
b. 36. teal inflammation, but no effective deposit of callus. The chief beauty of the specimen is a well-defined and narrow line of necrosis bordering the fracture its entire course.

Contributor and history unknown.

2342. The two upper thirds of the bones of the right leg. The tibia is fractured, with longitudinal splintering in the
b. 37. upper third. Below the point of injury are traces of old and decided periostitis, and the fibula, which is not fractured, is well marked in the same manner throughout the specimen [syphilitic periostitis?]. There is no known history.

Contributed by Assistant Surgeon B. Stone, U. S. Vols.

See class **XV.** C.

3945. The bones of the right leg, one month after injury. The tibia is shattered and the fibula transversely fractured
b. 38. (as if consecutively) in the upper third. The tibia is slightly necrosed.

Corporal S., "D," 9th New York Heavy Artillery: Monocacy, 9th July; died, Frederick, 11th August, 1864.

Contributed by Acting Assistant Surgeon J. C. Shimer.

1545. The greater portions of the bones of the left leg. The tibia is obliquely comminuted and the fibula transversely
b. 39. fractured in their upper thirds. Death occurred from pyæmia, leaving little pathological change in the specimen.

Contributed by Surgeon R. Thomain, 26th New York.

1894. The bones of the left leg, fractured with comminution in the upper thirds. The parts about the fracture are
b. 40. necrosed, beyond which there is some deposit of callus.

Received after Gettysburg.

708. The upper portions of the left tibia and fibula. The tibia is comminuted by a conoidal ball in the upper third
b. 41. and the lower fragment is necrosed. The fibula has been sawn near the junction of the upper third and in the specimen is not fractured.

Private B B., "C," 7th New Jersey: Fredericksburg, 14th December; admitted hospital much prostrated, Washington, 25th December, 1862; died, 12th January, 1863.

Contributed by Medical Cadet Kingston.

2060. The bones of the left leg, two months after injury. The tibia was perforated and the fibula fractured in the
b. 42. upper third. There has been a slight deposit of callus and great suppuration.

Private L. B. McG., "H," 28th North Carolina (Rebel): Gettysburg, 3d July; died from secondary hæmorrhage, Chester, Penna., 5th September, 1863.

Contributed by Acting Assistant Surgeon J. Moore.

3392. The bones of the right leg, twenty-four days after injury. The tibia was perforated by a rifle ball in the upper
b. 43. third and fractured nearly its entire extent.

Private J. R., "B," 79th Illinois: Resaca, Ga., 10th May; admitted hospital, Chattanooga, 2d July; died, 4th July, 1864.

Contributed by Assistant Surgeon C. C. Byrne, U. S. Army.

1804. Both bones of the right leg, fractured with comminution in the upper thirds. Necrosed fragments are about to
b. 44. separate, and there is a slight effusion of callus.

Received after Gettysburg.

1785. The bones of the left leg, with the tibia shattered in its upper third. A few pieces of dead bone are entangled in
b. 45. the scanty callus that has been deposited.
Contributor and history unknown.

518. The upper third of the bones of the left leg, with the tibia very badly shattered and the fragments necrosed.
b. 46. Contributed by Assistant Surgeon C. H. Alden, U. S. Army.

3735. The shaft of the left tibia, two and a half months after injury. The specimen shows a transverse fracture in the
b. 47. middle third with thorough necrosis. A moderate involucrum that has formed has been nearly destroyed by suppuration.
Private J. P., "G," 9th New York Heavy Artillery: probably Cedar Creek, Va., 19th October; admitted hospital, Baltimore, 24th October, 1864; died from exhaustion following gangrene and secondary hæmorrhage, 4th January, 1865.
Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.
See class **XXIII.** A. B.

3393. A portion of the left tibia, three months after injury. The bone was fractured in the middle third and has firmly
b. 48. united. There are a few carious points near the fracture. Erysipelas occurred in the course of the case, and the knee became inflamed and suppurated.
Private R. H. B., "I," 38th Alabama, (Rebel,) 34: Missionary Ridge, 25th November, 1863; died from exhaustion, Chattanooga, 2d March, 1864.
Contributed by Acting Assistant Surgeon C. E. Ball.
See classes **XIV.** A. B. c.; **XXIII.** A. A.

1313. A fragment, four inches by three-fourths of an inch in its greatest dimensions, believed to belong to a tibia with
b. 49. a compound fracture.
Contributed by Assistant Surgeon J. A. Freeman, 13th New Jersey.

1444. The right tibia, seven months after transverse perforation just below the head. A large quantity of callus has
b. 50. been deposited on the outside of the bone, and the cavity of passage is enlarged by ulceration. The lower portion of the specimen is superficially necrosed.
Private J. W. S., "K," 48th North Carolina, (Rebel,) 23: Hatcher's Run, Va., 31st March; died from exhaustion, Washington, 1st October, 1865.
Contributed by Brevet Captain W. F. Norris, Assistant Surgeon, U. S. Army.

284. The bones of the right leg, fractured with comminution just below their heads. Callus has been effused, but no
b. 51. union has taken place, except to a slight degree on the posterior surface of the tibia. There are several pieces of necrosed bone entangled.
Contributed by Surgeon T. H. Squire, 89th New York.

377. The upper portion of the bones of the right leg, with the tibia perforated just below the head by a bullet which
b. 52. has grazed the fibula. The wound of exit, on the other side of the tibia, is surrrounded by a deposit of callus embracing a slight exfoliation.
Contributed by Surgeon H. S. Hewit, U. S. Vols.

316. The upper halves of the bones of the right leg, transversely perforated, with longitudinal fissuring, by a conoidal
b. 53. ball just below the knee.
Contributed by Acting Assistant Surgeon H. J. Bigelow.

1527. A portion of the shaft of the tibia, with a moderate deposit of callus, after fracture, near one extremity, which is
b. 54. necrosed.
Contributor and history unknown.

3591. The upper portions of the bones of the left leg, with the head of the fibula carried away by a conoidal ball.
b. 55. Private E. D. L., "D," 17th Vermont, 19: Petersburg, 30th July; admitted hospital, Washington, 3d August; died from pyæmia, 21st August, 1864. The knee was not directly involved.
Contributed by Assistant Surgeon W. Thomson, U. S Army.

2184. The bones of the left leg, thirteen and a half months after injury. The tibia was fractured at the junction of
b. 56. the upper thirds, with the loss of an inch and a half. The upper fragment rotated upon itself and dislocated the fibula, to which there was union at one point. Great suppuration of bone substance has occurred, and the knee appears involved. Very numerous abscesses occupied the limb.
Private J. G., "D," 39th North Carolina (Rebel): Murfreesboro', Tenn , 31st December, 1862; remained in hospital there until removed to Nashville, 1st August, 1863; died from exhaustion with pulmonary complications, 15th February, 1864.
Contributed by Acting Assistant Surgeon R. T. Higgins.
See class **XIV.** A. B. c.

2633. The bones of the right leg, seventy-one days after injury. The specimen shows the fibula partially fractured and
b. 57. the tibia shattered in the middle thirds. One month after injury phagedæna appeared, lasting, without pyæmia, until death. A portion of the bone is blackened, possibly by the treatment employed. The parts about the injury are thoroughly necrosed and a deposit of callus occurred beyond. The medulla above the wound was acutely inflamed.

Musician G. H. P., "E," 60th Ohio, 14: Weldon R. R., 6th July; admitted hospital, near Alexandria, 24th July; died, 26th September, 1864. Bromine was used.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

1372. The upper halves of the bones of the left leg, seven weeks after injury. The fibula is fractured at the junction
b. 58. of the upper thirds and no attempt has been made at repair. The tibia is extensively necrosed on its entire surface. The knee became secondarily involved.

Private D. M., "E," 1st Michigan, 19: probably South Side R. R., 1st April; admitted hospital, Washington, 6th April; died from pyæmia, 17th May, 1865.

Contributed by Brevet Captain W. F. Norris, Assistant Surgeon, U. S. Army.

See class **XIV.** A. B. c.

3502. The lower halves of the bones of the right leg. The tibia has been fractured by gunshot and united at one or two
b. 59. points. The greater volume of the bone has been destroyed by suppuration.

Received, without history, from Cumberland Hospital.

3746. The lower halves of the bones of the left leg. The tibia has been fractured in the lowest third. A very extensive
b. 60. amount of callus has been deposited, and the remains of a sequestrum in the carious chamber may be seen through the cloacæ.

History and contributor unknown.

For other illustrations, see 2055, **XIV.** A. B. c. 14; 719, **XIV.** A. B. c. 18; 1940, **XIV.** A. B. c. 19; 3575, **XIV.** A. B. c. 20; 1972, **XIV.** A. B. c. 21; 493, **XVI.** A. B. b. 7.

c. Excisions.

1193. The head of the fibula, fractured, partly consolidated and excised.

c. 1. Private M. C., "G," 1st Michigan: Second Bull Run, 30th August, 1862; excised by Surgeon D. P. Smith, U. S. Vols., Alexandria, 17th March, 1863. Discharged the service with anchylosed knee.

Contributed by the operator.

1109. The head and one inch of the shaft of the left fibula, excised four and a half months after injury for caries.

c. 2. Private T. F. H., "G," 15th Massachusetts: Antietam, 17th September, 1862; excised by Surgeon S. D. Freeman, U. S. Vols., Baltimore, 20th February, 1863; discharged, 4th February, 1864.

Contributed by Acting Assistant Surgeon T. Artaud.

1110. Three and a half inches of the upper third of the left fibula, excised. The specimen encloses a bony sequestrum,
c. 3. and presents at one part the appearance of a united fracture.

Private W. P., "C," 8th Pennsylvania: Gaines' Mills, Va, 27th June, 1862; excised by Acting Assistant Surgeon T. Artaud, Baltimore, 2d February, 1863.

Contributed by the operator.

3269. The bones of the right knee, with four inches of the upper portion of the fibula, excised for fracture involving
c. 4. the heads of both leg bones.

Private J. B, "K," 170th New York, 44: admitted hospital, Washington, 28th August; gangrene occurred, 9th September; excision made by Acting Assistant Surgeon W. H. Ensign, 12th; posterior tibial ligated for secondary hæmorrhage by Surgeon N. R. Mosely, U. S. Vols., 18th; femur amputated in the lowest third, 18th; died, 21st September, 1864.

Contributed by Acting Assistant Surgeon H. G. Bates.

See 3250, **XV.** A. B. c. 3.

See classes **XV.** A. B. d; **XXII.** A. B.

583. Four inches of the shaft of the fibula, shattered by gunshot and apparently excised.

c. 5. Contributed, without history, by Surgeon H. Bryant, U. S. Vols.

1326. Two sections of the fibula, being, with the comminuted portions, six and a half inches, excised for shattering by
c. 6. gunshot.

Private M. H. C, "H," 23d Massachusetts: wounded, 15th December; excised by Surgeon C. A. Cowgill, U. S. Vols., Newbern, N. C., 26th December, 1862. "Recovered pleasantly."

Contributed by the operator.

675. Two and a half inches of the tibia, excised.
c. 7. Contributed by Acting Assistant Surgeon McGuigan.

2551. The bones of the right leg, with two inches of the shaft of the tibia in the middle third missing, supposed to
c. 8. have been excised for fracture. Much of the tibia is necrosed.
M. G.
Contributor and history unknown.

3337. The bones of the right leg, with two and a half inches of the middle third of the tibia, excised. The specimen
c. 9. shows the bone have died for an inch on each side of the excision.
Private N. B., "I," 155th Pennsylvania: Petersburg, 19th June; excised by Surgeon Reed, 155th Pennsylvania, 21st; admitted hospital, Alexandria, 28th June; gangrene appeared, 14th July; amputated in the middle third of thigh, 19th; died, 21st July, 1864.
Contributed by Surgeon E. Bentley, U. S. Vols.
See classes **XV.** A. B. d.; **XXIII.** A. B.

3367. Three and a half inches of the shaft of the left tibia, excised one month after injury. The specimen, which is
c. 10. much necrosed, shows an abortive attempt at repair.
Sergeant J. H. B., 94th Ohio, 21: Resaca, Ga., 14th May; admitted hospital, Nashville, 27th May; excision made, 13th June; died from pyæmia, 23d June, 1864.
Contributed by Surgeon R. L. Stanford, U. S. Vols.

2148. Three inches of the fragments of the middle third of the right tibia, removed for gunshot fracture, the fibula being
c. 11. uninjured.
Private S. H., "H," 2d Kentucky: Chickamauga, 19th September; excised by Surgeon I. Moses, U. S. Vols., 29th September; removed to Murfreesboro', November, 1863; progressed favorably, and "was furloughed with a good leg," January, 1864.
Contributed by the operator.
See 2149, **XV.** A. B. c. 12.

2149. Four inches of fragments, from the left tibia.
c. 12. Private L. M., "F," 21st Illinois: wounded at the same time and in the same manner, treated in the same way, and furloughed on the same date, with equally serviceable leg as (2148) preceding case.
Contributed by the operator.
See 2148, **XV.** A. B. c. 11.

1283. Four inches of the necrosed and fractured shaft of the tibia, excised.
c. 13. Contributed by Assistant Surgeon J. A. Freeman, 13th New Jersey.

2940. Five inches of the upper third of the left tibia, excised for gunshot fracture. There is superficial necrosis.
c. 14. Corporal W. N. E., "E," 1st Pennsylvania Cavalry, 24: White House, Va., 21st June; admitted hospital, Washington, 25th June; excised, 6th July; died from pyæmia, 23d July, 1864.
Contributed by Surgeon O. A. Judson, U. S. Vols.

2958. Five inches of the shaft of the left tibia, badly comminuted by a conoidal ball and excised.
c. 15. Private H. G., 116th New York, 24: Port Hudson, La., 27th May; admitted hospital, New Orleans, 30th May; excised by Assistant Surgeon P. S. Conner, U. S. Army, June; died from diarrhœa, 14th August, 1863.
Contributed by the operator.
See 2956, **XV.** A. B. c. 16.

2956. The bones of the left leg, from which five inches of the tibia in the middle and lower thirds have been excised for
c. 16. fracture by a conoidal ball. The specimen shows the extent of repair that existed two months later, when the patient died from diarrhœa. The extremity of the lower fragment is carious, and a spur from the upper projects three inches downward. The face of the fibula is involved with callus.
Private H. G., 116th New York, 24: Port Hudson, La., 27th May; admitted hospital, New Orleans, 30th May; excision by Assistant Surgeon P. S. Conner, U. S. Army, June; died from diarrhœa, 14th August, 1863.
Contributed by the operator.
See 2958, **XV.** A. B. c. 15.

4101. Fragments of the left tibia, six inches in length, removed by excision on account of fracture. The fibula was also
c. 17. fractured.
Private H. M., "H," 4th New York Heavy Artillery: Dinwiddie C. H., Va., 5th April; excised by Surgeon B. A. Vanderkieft, U. S. Vols., Annapolis, 16th April; died, exhausted, 9th May, 1865.
Contributed by the operator.

2108. The two lower thirds of the left tibia and fibula.
c. 18. Corporal P. L., "C," 10th Missouri: tibia fractured in its lowest third, Mission Ridge, 25th November, and two and a half inches excised that evening; admitted, with no attempt at repair, Field Hospital, Chattanooga, (?) 20th December, 1863; amputated in upper third on account of secondary hæmorrhage from posterior tibial, by Assistant Surgeon R. Bartholow, U. S. Army, 10th January; fibula found fractured near its articulation and excised; profuse secondary hæmorrhage and commencing gangrene, 16th; secondary hæmorrhage treated with actual cautery, 17th—31st January; amputated in the lowest third of thigh, 2d February, 1864.
Contributed by the operator.
See classes **XV.** A. B. d.; **XXIII.** A. B.

2404. Fragments, representing two inches of the fibula, excised from the lowest third after fracture.
c. 19. Private J. K., "I," 150th Pennsylvania: excised by Surgeon W. T. Humphrey, 149th Pennsylvania.
Contributed by the operator.

2155. The bones of the right leg, after an excision in the middle third. Both sawn ends of the tibia are diseased, and the
c. 20. callus that was deposited has been partially absorbed. Extensive ulceration occupied the whole leg when first admitted to hospital, Baltimore. Previous history unknown.
Private D. A. H., "C," 2d Massachusetts, 25: Gettysburg, 2d July; excision performed at period unknown; admitted hospital, Baltimore, nearly moribund, 19th November; amputated in the upper third, 16th December, 1863. Recovered.
Contributed by Surgeon C. W. Jones, U. S. Vols.
See class **XV.** A. B. d.

555. Four inches of the shaft of the left tibia, obliquely fractured, with comminution, in the upper third and successfully
c. 21. excised. There is some periosteal thickening, but consolidation could not have occurred.
Corporal J. D., "D," 56th Pennsylvania, 23: Second Bull Run, 28th August; admitted hospital, Washington, 1st September; excised, 4th October, 1862; reported healed and fit for discharge, 1st May, 1864.
Contributed by Surgeon Joseph R. Smith, U. S. Army.

d. Amputated Fractures.

590. The lower extremity of the right tibia, partially fractured just above the maleolus.
d. 1. Private G. F. McG., "I," 57th New York: amputated in the lowest third by Assistant Surgeon G. M. McGill, U. S. Army.
Contributed by the operator.

527. The lower halves of the left tibia and fibula, amputated. The fibula is comminuted just above the malleolus by a
d. 2. shot evidently directly from without, which has made an indented and partial fracture of the tibia.
Contributed by Assistant Surgeon W. Moss, U. S. Vols.

2527. The lower halves of the right leg bones, from a young subject. The fibula has been shattered about two inches
d. 3. above the joint, and the tibia grooved and partially fractured, apparently, by a fragment of shell.
Contributed by Acting Assistant Surgeon W. W. Keen, jr.

38. The lower halves of the bones of the right leg, with the fibula transversely fractured and the tibia shattered by a
d. 4. round ball which lodged about three inches above the joint.
Corporal J. L. G., "A," 66th Ohio: Slaughter Mountain, Va., 9th August; admitted hospital, Alexandria, 12th; amputated in the middle third by Assistant Surgeon J. B. Brinton, U. S. Army, 15th August, 1862.
Contributed by the operator.
See class **XXVII.** B. B. d.

2485. The bones of the right leg, amputated in the middle for a comminuted fracture of the tibia in the lowest third.
d. 5. Sergeant G. B. C., "H," 11th Connecticut: amputated by Surgeon N. R. Mosely, U. S. Vols., 10th June; died from secondary hæmorrhage, 13th June, 1864.
Contributed by the operator.

3941. The lower halves of the bones of the right leg, fractured, with moderate comminution, in the lowest third by a
d. 6. conoidal ball.
Private S. B., "I," 14th New Jersey, 18: Monocacy, 9th July; amputated, Frederick, 28th July; died, 24th August, 1864.
Contributed by Acting Assistant Surgeon G. M. Paullin.

2793. The lower portion of the left tibia, necrosed for several inches and having a thin coating of osseous matter above
d. 7. the seat of injury.

Private J. G., "K," 131st New York, 53: thirty years before, this man was injured in the United States service in Florida, and the wound has broken out at intervals subsequently; early in 1863 he injured the same spot by falling from a street car; from this and intemperate habits a large sloughing ulcer with necrosis of tibia occurred; admitted hospital, Philadelphia, 17th March; amputated in middle third by Surgeon J. J. Reese, U. S. Vols., April, 1863. Recovered.

Contributed by the operator.

See classes **XV.** A. B. a.: **XV.** B. B. d.

1599. The lowest thirds of the left tibia and fibula, four months after injury. The bones were accidentally fractured by
d. 8. a carbine ball about two inches above the ankle. The specimen shows slight irregular union, with considerable loss of substance, probably due to the scrofulous constitution of the subject.

Private W. S., "F," 1st Florida Cavalry, 19: Montgomery, Alabama, 6th May; admitted hospital, Mobile, 26th August; amputated in the middle third, 30th August, 1865.

Contributed by Surgeon Samuel Kneeland, U S. Vols.

3382. A portion of the right tibia, three weeks after injury. A battered conoidal ball, which has longitudinally fractured
d. 9. the bone, is lodged in the lowest third.

Private W. N., "H," 20th Illinois: Kenesaw Mountain, Ga., 17th June; admitted hospital, Rome, 27th June; amputated in the middle third of the leg for secondary hæmorrhage by Surgeon G. F. French, U. S. Vols., 6th July; died from exhaustion, 19th August, 1864.

Contributed by the operator.

See class **XXVII.** B. B. d.

195. The lower half of the left fibula, amputated six weeks after fracture by a conoidal ball. There is no attempt at
d. 10. repair and the extremities are necrosed.

Sergeant D. B., "K," 93d Pennsylvania, 19: Petersburg, 25th March; admitted hospital, Washington, 2d April; amputated by Acting Assistant Surgeon H. Craft, 6th May; died from pyæmia, 15th May, 1865.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

3647. The lower portions of the bones of the left leg. The tibia was nearly entirely fractured by a conoidal ball in the
d. 11. lowest third. The specimen shows some deposit of callus around the orifice, and an extensive loss of substance in the body of the bone, which is carious.

Sergeant J. C. S., "F," 1st Rhode Island Artillery: Petersburg, 10th August; amputated in the middle third, Philadelphia, 28th September; died, 7th October, 1864.

Contributed by Acting Assistant Surgeon G. P. Sargent.

3707. The bones of the right leg, ten days after injury. The tibia was shattered in the lowest third. No effusion
d. 12. of callus has taken place, but incipient necrosis is seen.

Private C., "B," 10th Connecticut: Deep Bottom, Va., 16th August; amputated in the middle third of the leg, Beverly, N. J., 26th August; died, 11th September, 1864.

Contributed by Assistant Surgeon C. Wagner, U. S. Army.

3395. The lower half of the left tibia, amputated for an oblique fracture with splintering, but
d. 13. without displacement, in the lowest third.

Private J. M. W., "C," 97th Ohio, 30: Dallas, Ga., 26th May; admitted hospital, Chattanooga, 6th June; amputated; transferred to Nashville, 24th June; discharged, 12th November, 1864.

Contributed by Assistant Surgeon C. C. Byrne, U. S. Army.

481. The lower portions of the bones of the right leg, ten and a half months after injury.
d. 14. The tibia was perforated three inches above the ankle by a conoidal ball. Much suppuration has created a large cavity in the bone, which is increased by the external deposit of callus.

See figure 128.

Private E. C., "A," 3d Mississippi, (Rebel,) 22: Peach Tree Creek, Ga., 20th July, 1864; admitted hospital, Mobile, 7th June; amputated in the middle third, 8th June; discharged, healed, 8th July, 1865.

Contributed by Surgeon S. Kneeland, U. S. Vols.

FIG. 128. Bones of left leg ten and a half months after fracture. *Spec.* 481.

2594. The bones of the right leg, seven months after injury. Both bones were
d. 15. fractured in the lowest third. The fibula is firmly consolidated. Much callus has been effused about the tibia, but caries has prevented firm union. *See figure* 129.

Private W. H. H., "D," 18th Massachusetts: Fredericksburg, 13th December, 1862; amputated in the middle third by Assistant Surgeon C. R. Greenleaf, U. S. Army, Philadelphia, July, 1863. Recovered.

Contributed by the operator.

FIG. 129. Bones of right leg seven months after fracture. *Spec.* 2594.

3603. The right tibia, comminuted in the middle third by a glancing ball without
d. 16. injury of the fibula. *See figure* 130.

Brigadier General F., U. S. Vols.: amputated below the knee by Professor F. Bacon, eight days after injury. Recovered.

Contributed by the operator.

2475. Portions of the bones of the right leg, shattered by a conoidal ball which
d. 17. entered the lowest fourth of the thigh and passed downward.

Private M. S., "C," 7th New York Heavy Artillery: wounded, 21st May; admitted hospital, Washington, 26th May; amputated in the upper third of the leg by Acting Assistant Surgeon Nelson, 6th June; died, 11th June, 1864.

Contributed by Surgeon G. L. Pancoast, U. S Vols.

2585. The middle third of the left tibia, obliquely fractured by a conoidal ball and
d. 18. amputated in the upper third.

Private A. B. C., "H," 58th Massachusetts, 18: Cold Harbor, 7th June; admitted hospital, Washington, 15th June, 1864; amputated by Acting Assistant Surgeon Nelson. Died.

Contributed by the operator.

FIG. 130. Tibia, amputated for fracture in middle third. *Spec.* 3603.

2807. The two lower thirds of the bones of the left leg, amputated for very extensive fracture of the shaft of the tibia.
d. 19. Private H. K. D., "K," 44th New York, 22: Petersburg, 22d June; admitted hospital, 2d July; amputated by Assistant Surgeon A. Delany, U. S. Vols., 6th July, 1864; discharged the service, 18th March, 1865.

Contributed by the operator.

1271. The greater portion of the right tibia and lower portion of the fibula, shattered at the junction of the lower thirds
d. 20. "by conoidal (?) ball and buckshot."

Private M. B., "C," 149th New York: Chancellorsville, 3d May; admitted Field Hospital, 14th; amputated below the knee by Assistant Surgeon D. H. Strickland, 111th Pennsylvania, 16th May, 1863. Recovered.

Contributed by the operator.

2716. The bones of the right leg, after amputation in the upper third. The lowest third of the tibia is nearly transversely
d. 21. fractured, and the injury is complicated with longitudinal fractures that give it the "broken willow" appearance. These longitudinal fractures communicate with an oblique fracture near the middle of the specimen. Incipient death of the bone is traced near the line of injury.

Private J. L. B., "K," 4th South Carolina, (Rebel,) 21: Mechanicsville, 30th May; amputated, Washington, 29th June; died, 2d July, 1865.

Contributed by Acting Assistant Surgeon T. L. Leavitt.

3926. The two lower thirds of the bones of the left leg, with the tibia shattered by a conoidal ball and the fibula
d. 22. transversely fractured in their lowest thirds.

Lieutenant Colonel E. T., 9th New York Heavy Artillery, 32: Monocacy Junction, 9th July; amputated in the upper third for secondary hæmorrhage by Assistant Surgeon R. F. Weir, U. S. Army, 22d July; received leave of absence, stump nearly healed, 7th September, 1864. Never afterward reported to hospital.

Contributed by the operator.

634. The shaft of the right tibia, comminuted in the middle third by a conoidal ball. There is very little displacement
d. 23. of fragments as seen in the specimen, but, post mortem, it was found that a spicula had been driven into the anterior tibial artery.

Private E. W., "F," 136th Pennsylvania, 45: Fredericksburg, 13th December; admitted hospital, Washington, 21st; amputated in the upper third for obstinate secondary hæmorrhage, 28th December, 1862; died after recurring hæmorrhage, 1st January, 1863.

Contributed by Surgeon O. A. Judson, U. S. Vols.

117. The bones of the left leg, six and a half months after injury. The tibia was fractured in the middle third. No
d. 24. union has taken place, and the specimen shows ulcerative action. Erysipelas at one time supervened.

Private W. C. B., "K," 93d Ohio, 23: Chickamauga, 20th September, 1863; admitted hospital, Louisville, 25th February; amputated, 12th April, 1864. Recovered.

Contributed by Assistant Surgeon B. E. Fryer, U. S. Army.

See class **XXVII.** A. A.

22. The right tibia, shattered in the lowest third by a musket ball and amputated below the knee. Incipient necrosis
d. 25. can be seen.

Private G, "D," 69th New York: Malvern Hill, 1st July; amputated, Washington, 18th July; transferred in good condition from Judiciary Square Hospital, 29th October, 1862.

Contributor and further history unknown.

4100. The lower portions of the bones of the left leg, after amputation below the knee for comminution in the lower
d. 26. thirds. The fibula is transversely broken with moderate loss. Nearly two inches of the tibia is missing.

Private E. C., "D," 2d Connecticut Heavy Artillery: Chapman's Farm, Va., 6th April; amputated by Surgeon B. A. Vanderkieft, U. S. Vols., Annapolis, 18th April, 1865.

Contributed by the operator.

345. The two lower thirds of the right tibia, comminuted extensively in the middle third. A good illustration of the
d. 27. effect of a conoidal musket ball fairly striking the shaft of a long bone.

Private A. J.: amputated below the knee.

Contributed, without history, by Assistant Surgeon J. W. S. Gouley, U. S. Army.

7. The bones of the left leg, amputated eight weeks after injury. The fibula was fractured in the middle third and
d. 28. callus thrown out without union. The tibia was necrosed in a small space, around which callus was thrown out, uniting with the free extremity of the fibula.

Private W. J., "K," 2d Florida, (Rebel,) 25: Williamsburg, 5th May; admitted hospital, Washington, 16th May; erysipelas occurred, 1st June; limb amputated in the upper third, 28th June; died, 6th July, 1862.

Contributed by Assistant Surgeon J. S. Billings, U. S. Army.

See class **XXIII.** A. A.

2472. The right tibia, extensively comminuted, and the fibula, transversely fractured in the lowest third by a conoidal
d. 29. ball entering the tibial side.

Private D. H., "H," 170th New York: wounded, 24th May; admitted hospital, Washington, 29th; amputated in the upper third by Acting Assistant Surgeon Ottman, 30th May; died, 26th June, 1864.

Contributed by Surgeon G. L. Pancoast, U. S. Vols.

1542. The bones of the right leg, thirteen days after injury. The tibia is shattered in the upper third. The specimen
d. 30. shows a decided effort of nature to throw off the dead bone. Amputation was performed below the knee. Recovered.

Contributed by Surgeon R. Thomain, 29th New York.

585. The shaft of the tibia, longitudinally fractured, with comminution in the middle third, amputated in the upper
d. 31. third.

Private W. S., "I," 1st Pennsylvania Rifles: Fredericksburg, 13th December; amputated by Surgeon H. Bryant, U. S. Vols., Washington, 25th December, 1862.

Contributed by the operator.

3476. The bones of the left leg, six weeks after injury. The tibia was shattered just below the head and is carious.
d. 32. Private J. L. B., "I," 14th New York, 22: Cedar Creek, Va., 19th October; admitted hospital, Baltimore, 25th October; amputated in the lowest third of the thigh by Acting Assistant Surgeon A. W. Emory, 29th November, 1864; discharged, 10th April, 1865.

Contributed by Surgeon T. Sim, U. S. Vols.

2587. A part of the right tibia, sixteen days after injury. The specimen is fractured in the upper third and exhibits
d. 33. well-marked necrosis.

Private A. R., "C," 100th Pennsylvania: wounded, 4th June; admitted hospital, Washington, 15th; amputated in the upper third by Surgeon G. L. Pancoast, U. S. Vols., 20th June, 1864.

Contributed by the operator.

2067. The two lower thirds of the bones of the left leg, five months after injury. The tibia was partially fractured in
d. 34. the lowest third. Callus has nearly repaired the injury, leaving, however, a sinus in the bone.

Private S. R. T., "G," 89th New York: Antietam, 17th September, 1862; amputated in the upper third, Chester, Penna., 15th February, 1863.

Contributed by Acting Assistant Surgeon L. Fisher.

212. The bones of the right leg, amputated in the upper third on account of gangrene following a contusion of the
d. 35. tibia by shell in the middle third. The periosteum was denuded for several inches.

Private J. D., "F," 17th Michigan: probably South Mountain or Antietam; admitted hospital, Washington, 13th October; amputated by Acting Assistant Surgeon L. Heard, 21st October, 1862. Recovered.

Contributed by the operator.

See class **XV.** A. B. a.

2888. The right tibia and fibula, amputated in the upper third for a double transverse fracture of the fibula and very
d. 36. oblique comminution of the tibia in the lowest third.

Private G. K., "D," 98th Pennsylvania, 50: near Washington, 11th July; admitted hospital, 12th; amputated, 20th July, 1864.

Contributed by Acting Assistant Surgeon W. H. Randolph.

3316. The bones of the right leg, about two and a half months after injury. The tibia was partially fractured, and the
d. 37. greater portion of the shaft was necrosed at the time of amputation.

Sergeant A. C. B., "G," 13th Pennsylvania Cavalry, 36: admitted hospital, Washington, 17th August; amputated in the upper third by Surgeon N. R. Mosely, U. S. Vols., 20th October; died, 29th October, 1864.

Contributed by Acting Assistant Surgeon J. E. Jandrin.

1920. The left tibia, six weeks after contusion by a conoidal ball on the middle third of the anterior border. The bone
d. 38. is thoroughly denuded of periosteum and is necrosed in its greatest extent.

Private G. W., "B," 1st Ohio Artillery, 20: Chickamauga, 20th September; amputated below the knee, Nashville, 6th November; died, 7th November, 1863.

Contributed by Acting Assistant Surgeon M. L. Herr.

See class **XV.** A. B. a.

321. The left tibia, sixteen days after fracture in the middle third by a conoidal ball. Periostitis involved the shaft
d. 39. with a delicate coating of callus.

Private J. N. C., "K," 46th Pennsylvania: Cedar Mountain, 9th August; admitted hospital, Alexandria; amputated below the knee by Acting Assistant Surgeon S. E. Fuller, 27th August; erysipelas followed; secondary hæmorrhage, 16th September; died, 19th September, 1862.

Contributed by the operator.

3389. The shaft of the right tibia, with an extensive longitudinal fracture by shell, which also denuded the fibula of
d. 40. periosteum.

Private T. C. E., "E," 31st Ohio, 18: Marietta, Ga., 22d June; admitted hospital, Chattanooga, 29th June; amputated in the upper third, 8th July; died, exhausted, 1st August, 1864.

Received from General Field Hospital, Chattanooga.

2058. The bones of the left leg, one month after injury. The tibia was shattered at the junction of the lower thirds
d. 41. and is necrosed without union.

Private W. A. F., "A," 55th North Carolina, (Rebel,) 24: Gettysburg, 1st July; amputated at the knee joint, Chester, Penna., 6th August; died, 11th August, 1863.

Contributed by Assistant Surgeon B. Stone, U. S. Vols.

See class **XIV.** A. B. e.

2061. The lowest thirds of the bones of the left leg and the foot, one month after injury. The tibia was perforated by a
d. 42. conoidal ball just above the ankle, and a small amount of callus surrounds the dead bone retained. The fourth metatarsal bone also is fractured.

Private W. W., "D," 52d North Carolina (Rebel): Gettysburg, 3d July; amputated at the knee joint, Chester, 5th August, 1863. Recovered.

Contributed by Acting Assistant Surgeon J. A. Draper.

See classes **XIV.** A. B. e.; **XVII.** A. B. e.

2065. The bones of the right leg, eight and a half months after injury. The tibia is sawn in two longitudinally,
d. 43. exhibiting extensive disease of the shaft following a partial fracture in the middle third. Very considerable deposit of spongy callus over the surface of the bone has occurred, and a sequestrum of four inches is found within.

Private H. C. P., "B," 12th New York: Gaines' Mill, Va., 27th June, 1862; amputated at the knee joint, Chester, Penna., 14th March, 1863. Recovered.

Contributed by Acting Assistant Surgeon J. A. Draper.

See class **XIV.** A. B. e.

2049. The bones of the left leg, two months after injury. The tibia was fractured at the junction of the lower thirds.
d. 44. Much of the shaft of the tibia has disappeared under fracture and absorption, and the fibula is thickened by periostitis.

Private D. F. A., "C," 55th North Carolina (Rebel): Gettysburg, 1st July; amputated at knee joint, Chester, Penna., 29th August; died, 20th September, 1863.

Contributed by Acting Assistant Surgeon Griffith.

See class **XIV.** A. B. e.

2051. The upper portions of the bones of the left leg, with the tibia shattered. No attempt at repair has been made.
d. 45. Sergeant W. H., "B," 14th Tennessee (Rebel): Gettysburg, 1st July; amputated at the knee joint, the posterior tibial having ulcerated, Chester, Penna, 25th July; died from exhaustion, 10th August, 1863.

Contributed by Acting Assistant Surgeon J. L. Whitaker.

See class **XIV.** A. B. e.

2791. The bones of the left leg, one and a half months after injury. The tibia was wounded, without complete fracture,
d. 46. and the specimen shows very extensive death of the bone, embracing nearly the entire shaft. Amputation was performed below the knee, but, not clearing the diseased portions, it was immediately repeated.

Private G. M. W, "H," 98th Pennsylvania: Gettysburg, 2d July; amputated through the knee joint, Philadelphia, 15th August, 1863. Recovered.

Contributed by Acting Assistant Surgeon M. S. Perry.

See class **XIV.** A. B. e.

270. The bones of the left leg, eleven weeks after injury. The tibia was comminuted, without being completely
d. 47. fractured, in the middle third by a round ball, which is attached. Callus has fastened several of the splinters of bone. There are a few fragments of dead bone remaining.

Private S. S., "K," 5th Vermont: wounded, 29th June; admitted hospital, Chester, Penna., 13th August; amputated at knee joint by Acting Assistant Surgeon J. K. Kane, 6th October; died, 9th October, 1862.

Contributed by the operator.

See classes **XIV.** A. B. e.; **XXVII.** B. B. d.

1993. The left tibia, shattered in the upper third by a conoidal ball. There has been loss of substance and some deposit
d. 48. of callus. The inner face of the cavity is carious.

Private M. H., "A," 18th Connecticut, 18: Winchester, 15th June; admitted hospital, Baltimore, 5th August; amputated in the lowest third of thigh for suppurative inflammation of the knee, 23d December, 1863; discharged, 15th June, 1864.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

See class **XIV.** A. B. c.

1943. The upper third of the right tibia, shattered by a conoidal ball, three months after injury. There is much loss
d. 49. of substance, and a thin layer of callus has been deposited over the fractured parts, which internally are carious.

Private C. D. B., "K," 53d Virginia, (Rebel,) 19: Gettysburg, 3d July; tendency to anchylosis, 12th August; knee much inflamed and thigh amputated in its lowest third, 30th September; died, 3d October, 1863.

Contributed by Acting Assistant Surgeon E. P. Townsend.

See class **XV.** A. B. c.

444. Portions of the bones of the left leg, with a gunshot fracture through the head of the tibia. The interosseous
d. 50. membrane is preserved in this specimen.

Private W. H. J., Ashland Artillery (Rebel): Antietam, 17th September; amputated in the lowest third of the thigh by Acting Assistant Surgeon Hines, Frederick, 25th October, 1862.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

589. The upper halves of the bones of the right leg. The tibia is comminuted in the upper third without complete
d. 51. fracture of the shaft, apparently by a nearly spent missile, such as a fragment of shell or grape shot.

Private A. A. C., "K," 34th New York: probably Fredericksburg, 13th December; amputated in the thigh by Surgeon H. Bryant, U. S. Vols., Washington, 26th December, 1862; died, 25th January, 1863.

Contributed by the operator.

See class **XV.** A. B. a.

1181. The left tibia and fibula, fractured in their upper thirds. Gangrenous inflammation occupied the leg for twenty
d. 52. days, until arrested by permanganate of potassa The fractured extremities are necrosed with lines of demarcation, beyond which are traces of periosteal inflammation.

Private N. A. P., "D," 2d Rhode Island: Fredericksburg, 3d May; admitted hospital, Washington, 8th; amputated above the knee, 29th May, 1863.

Contributed by Surgeon J. H. Baxter, U. S. Vols.

917. The upper portions of the bones of the left leg, three months after injury. A musket ball lodged in the tibia to
d. 53. the depth of half an inch, about two inches below the head. Phagedænic sloughing in the fourth week denuded the tibia for three inches, and it was amputated on account of hospital gangrene. The specimen shows a carious condition at the point of impact, with a slight line of callus on the outer side.

Corporal J. C. B., "H," 7th Wisconsin: South Mountain, Md., 14th September; amputated in the thigh by Acting Assistant Surgeon G. W. Corey, Middletown, Md., 8th December, 1862. Recovered.

Contributed by the operator.

See class **XV.** A. B. a.

2874. The upper thirds of the left fibula, unbroken, and the tibia shattered just below its head. The fragments are
d. 54. partly necrosed.

Private E. S., "I," 1st Pennsylvania Rifles: admitted hospital, Washington, 24th June; amputated in the lowest third of the thigh by Surgeon N. R. Mosely, U. S. Vols., 15th July, 1864; died, exhausted, 11th April, 1865.

Contributed by Acting Assistant Surgeon R. L. Skinner.

2357. The upper halves of the right tibia and fibula, transversely perforated below their respective heads and amputated
d. 55. in the lowest third of the thigh.

Private R. E., "B," 1st Michigan Sharpshooters, 28: Wilderness, 12th May; amputated in the lowest third of the thigh by Acting Assistant Surgeon L. C. Dodge, Washington, 26th May; died of pyæmia, 6th June, 1864.

Contributed by the operator.

732. The bones of the left leg, with the tibia fractured in the upper portion by shell, the fibula not involved. Amputated
d. 56. in the thigh at Hilton Head, S. C.

Contributed by Assistant Surgeon J. E. Semple, U. S. Army.

3006. The bones of the right knee, with the tibia and fibula perforated just below their heads by a conoidal ball.
d. 57. There was very little splintering, and a profusion of callus has been thrown out about the wound, the track of which, however, is carious. Inflammation involving the joint, the thigh was amputated in the lowest third.

Private P. C., "E," 88th Illinois, 26: Mission Ridge, 25th November, 1863; admitted hospital, Madison, Ind., 8th April; amputated in the lowest third of the thigh by Surgeon G. Grant, U. S. Vols , May; doing well, 1st August, 1864. For details, see photograph history.

Contributed by Acting Assistant Surgeon B. McCluer.

See 4628, **XXVI.** A. 2, 95.

See class **XIV.** A. B. c.

3436. The right tibia, three months after injury. A small segment in the middle third of the anterior border of the
d. 58. tibia has been chipped, without splintering, by gunshot. The bone is necrosed nearly its entire length, with slight patches of osseous matter upon the detached periosteum. This case much resembles one of contusion.

Sergeant A. H., "M," 2d New York Heavy Artillery, 29: Ream's Station, Va., 25th August; admitted hospital, Washington, 28th August; gangrene from 12th to 20th September; thigh amputated in the lowest third by Acting Assistant Surgeon W. H. Ensign, 21st November, 1864. Recovered.

Contributed by the operator.

See classes **XV.** A. B. a.; **XXIII.** A. B.

2924. The left tibia, two months after injury. The bone was shattered just below the head by a conoidal ball, and a
d. 59. broad line of necrosis occupies the anterior border of the shaft its entire length.

Private W. H., "I," 6th North Carolina, (Rebel,) 45: near Petersburg, 1st June; admitted hospital, Washington, 10th June; amputated in lowest third of thigh by Acting Assistant Surgeon T. L. Leavitt, and died, 4th August, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

2202. The bones of the left leg, three and a half months after injury. The tibia has united after fracture by a conoidal
d. 60. ball in the upper third, but much of the lower portion of the shaft is carious and patched with spongy callus.

Private G. W., "K," 7th Ohio, 24: Ringgold, Ga., 27th November, 1863; admitted hospital, Nashville, 2d February; amputated in the lowest third of the thigh, 15th March, 1864. Recovered.

Contributed by Acting Assistant Surgeon M. L Herr.

968. The bones of the left leg, four months after injury. The tibia and fibula were fractured in the middle third;
d. 61. abundant callus was thrown out, and union with some deformity occurred. Fragments of necrosed bone and of the missile were, however, retained in the wound, causing an exhausting drain.

Private G. W. L., 43d Ohio: Corinth, 4th October; admitted hospital, Jackson, Tenn., 13th December, 1862; amputated in the lowest third of thigh, 2d February, 1863.

Contributed by Assistant Surgeon J. P. Wright, U. S. Army.

3723. The left fibula, with an ununited fracture of the upper third.
d. 62. Private ——— ———, "B," 13th Ohio Cavalry: South Side R. R., 30th September, 1864; thigh amputated on account of gangrene, Beverly, N. J.

Received, without history, from Beverly, N. J

See class **XXIII.** A. B.

2575. The shaft of the right tibia, three weeks after injury. The bone is obliquely fractured and several large fragments
d. 63. are missing. The broken extremities are necrosed, beyond which the bone is carious.

Private S. E. K., "H," 4th Maine, 36: North Anna, Va., about 25th May; amputated in the lowest third of the thigh, Washington, 17th June; died, 22d June, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

4245. The right tibia, two months after injury. The bone is shattered in the upper third. There is necrosis of a
d. 64. considerable portion of the shaft, and a large deposit of callus encloses the dead bone irregularly, with partial union.

Private A. K., "E," 5th Minnesota, 26: Nashville, 16th December; admitted hospital, Louisville, 20th December, 1864; amputated in the lower part of the thigh by Acting Assistant Surgeon H. M. Lilly, 10th February; discharged the service, 21st June, 1865.

Contributed by Surgeon R. R. Taylor, U. S. Vols.

1695. The upper portions of the bones of the left leg, fractured below the knee, five weeks after injury. The fibula
d. 65. was shattered, and the tibia perforated and longitudinally fractured by a conoidal ball which lodged beneath the head. The specimen shows callus effused on the fibula, with several exfoliations about to separate on each bone, a carious condition internally in the tibia and traces of periosteal inflammation.

Private T. J., "E," 70th New York, 26: Gettysburg, 3d July; admitted hospital, Baltimore, 11th; missile removed, 27th July; amputated in the lowest third of the femur for secondary hæmorrhage, 7th August; died from exhaustion, 18th August, 1863.

Contributed by Surgeon C. W. Jones, U. S. Vols.

See class **XXVII.** B. B. d.

3319. The bones of the left leg, four months after injury. Both tibia and fibula appear to have been contused on their
d. 66. posterior borders in the lowest third. Gangrene occurred in the wound with extensive necrosis of both bones. A partial involucrum was thrown out for a considerable extent.

Sergeant H. A. C., "G," 2d United States Sharpshooters, (Volunteers,) 23: admitted hospital, Washington, 30th June; amputated in the lowest third of the thigh, 20th October; died, 1st November, 1864.

Contributed by Acting Assistant Surgeon J. Walsh.

See classes **XV.** A. B. a; **XXIII.** A. B.

3004. A portion of the left tibia, one month after injury. The bone was fractured at the junction of the lower thirds
d. 67. with little comminution. There is no attempt whatever at repair. Amputation was attempted in the upper third, but, on account of a sinus, was performed above the knee.

Private H. K., "E," 139th Pennsylvania, 33: Fort Stevens, and admitted hospital, Washington, 12th July; amputated by Acting Assistant Surgeon J. F. Barbour, 11th August, 1864.

Contributed by the operator.

1670. The fibula, six weeks after injury, ununited and with necrosis of the extremities of fracture. After amputation
d. 68. the peroneal artery was found to be wounded and a large aneurismal sac formed.

Private L. N., "F," 157th New York, 18: Gettysburg, 1st July; admitted hospital, Baltimore, 7th July; amputated in the lowest third of thigh for secondary hæmorrhage and profuse suppuration, 14th August, 1863; discharged, 31st May, 1864.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

3477. The shaft of the left tibia, two months after injury. The bone was partially fractured by shell in its upper third,
d. 69. and at the time of the amputation the shaft was necrosed in three-fourths its length.

Private A. H. S., "H," 13th Pennsylvania Cavalry, 25: Weldon R. R., Va., 29th September; admitted hospital, Washington, 11th October; amputated in the lowest third of the thigh by Acting Assistant Surgeon J. H. Thompson, 3d December, 1864. Recovered.

Contributed by Assistant Surgeon P. C. Davis, U. S. Army.

1546. The upper thirds of the bones of the right leg, with the tibia fractured below the head. The subject, but fifteen
d. 70. years of age, was amputated in the lowest third of the thigh by a secondary operation.

Contributed by Surgeon R. Thomain, 29th New York.

3468. The right tibia, showing a portion of the bone chiseled off after a contusion. The bone has been removed to
d. 71. the medullary cavity over a space of one-half by three-fourths of an inch near the junction of the upper thirds. Below this the anterior face of the tibia has been irregularly removed for two and a half inches.

Corporal S. H. P., "C," 14th New Jersey: tibia contused and periosteum removed, without fracture, Monocacy, 9th July; imprudent exertion induced inflammation, followed by gangrene, 1st August: diseased bone removed to allow the escape of pus, 13th September; amputated above the knee by Surgeon T. Sim, U. S. Vols., 15th September, 1864. Recovered.

Contributed by Acting Assistant Surgeon G. W. Fay.

See classes **XV.** A. B. a.; **XV.** A. B. e.; **XXIII.** A. B.

4272. The bones of the left leg, with the tibia shattered at the junction of the lower thirds by a musket shot, and the
d. 72. fibula transversely fractured in the middle third, probably by the weight of the body.

Sergeant N. H. G., "F," 58th Virginia (Rebel): Winchester, 20th July; admitted hospital, Cumberland, Md., 23d; amputated in the lowest third of the thigh, —— July; died, 8th August, 1864.

Contributed by Surgeon J. B. Lewis, U. S. Vols.

3025. The two upper thirds of the bones of the left leg, eighty days after injury. The tibia was
d. 73. badly shattered below the knee, and nearly all the effused callus has been absorbed. One large fragment is partially reattached with displacement forward. The cavity of the bone is carious. *See figure* 131.

Private W. H. H., "I," 19th Maine: North Anna, 24th May; amputated in the lowest third of the thigh, Washington, 12th August, 1864.

Contributed by Acting Assistant Surgeon W. H. Randolph.

FIG. 131. Bones of left leg eighty days after fracture of tibia. *Spec.* 3025.

4096. The right tibia, comminuted in the middle third. The fractured extremities are necrosed.
d. 74. Private A. T., "A," 29th Pennsylvania, 29: Petersburg, 2d April; admitted hospital, Washington, 12th; amputated in the thigh for secondary hæmorrhage by Surgeon D. W. Bliss, U. S. Vols., 25th April; died from pyæmia, 23d May, 1865.

Contributed by Acting Assistant Surgeon J. R. Tewmey.

3427. The right tibia, very obliquely fractured, with some comminution, but with little displace-
d. 75. ment of fragments, in the upper third. The point of impingement by the ball, which appears to have glanced, is plainly observable on the spine below the tubercle.

Private J. A. S., 1st Veteran Maine Battery, 21: Cedar Creek, Va., 19th October; admitted hospital, Baltimore, 24th; amputated in the lowest third of the thigh by Acting Assistant Surgeon E. G. Waters, 25th October, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

3273. The bones of the left leg. A conoidal ball entered the tibia at its upper and posterior border and, ranging
d. 76. downward and forward, became impacted on the front of the bone, extensively splintering the upper third.

Corporal S. F., "E," 67th New York, 37: near Winchester, 19th September; amputated in the lowest third of the thigh by Assistant Surgeon J. G. Thompson, 77th New York, 24th September; died from pyæmia, 13th October, 1864.

Contributed by the operator.

See class **XXVII.** B. B. d.

3328. The bones of the left leg, four months after injury. The tibia was completely fractured
d. 77. in the upper third. Union, with some displacement, occurred on the posterior surface. Much callus has evidently been formed and subsequently absorbed.

Private W. H., "A," 106th New York, 20: Wilderness, 9th May; admitted hospital, Washington, 26th May; amputated through the thigh, on account of extensive abscesses, by Surgeon R. B. Bontecou, U. S. Vols., 11th September; died, 19th September, 1864.

Contributed by the operator.

1582. The bones of the right leg, three months after fracture below the knee. Firm union with
d. 78. some displacement has occurred in the fibula. Callus that was effused in the tibia appears to have been absorbed. Gangrene was present during the last six weeks. The tibia is superficially necrosed in much of the specimen. *See figure* 132.

Private B. F. R., "K," 26th Pennsylvania, 21: Chancellorsville, 3d May; amputated above the knee, Washington, 6th August, 1863; transferred, 22d January, 1864.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

See class **XXIII.** A. B.

FIG. 132. Bones of right leg, three months after fracture below knee. *Spec.* 1582.

46. A ligamentous preparation of the bones of the left knee. The tibia has been completely carried away and the
d. 79. fibula fractured about two inches below the joint. There was also an extensive flesh wound in the lower part of the thigh, and amputation was performed in the lowest third of the femur.

Wounded, probably by shell, Cedar Mountain, Va., 9th August; admitted hospital, Alexandria, 12th; amputated by Surgeon J. E. Summers, U. S. Army, 15th August, 1862. Name and result unknown.

Contributed by the operator.

2228. The upper portion of the left tibia, fractured on its posterior surface by a ball which entered behind the knee.
d. 80. The laminated bone is missing for three square inches. Removed twenty-four miles the day of injury.

Private W. R., "D," 8th Tennessee Cavalry, (Rebel,) 21 (quarter-blood Indian): Sevierville, Tenn, and admitted hospital, Knoxville, 20th February; severe secondary hæmorrhage; on cutting down to tie the tibial the popliteal was found to bleed; amputated in the thigh by Assistant Surgeon H. L. W. Burritt, U. S. Vols., 5th March; died from pyæmia, 11th March, 1864.

Contributed by the operator.

See class **XV.** A. B. a.

1808. The bones of the right leg, twelve weeks after injury. Both bones were fractured in the upper third and are
d. 81. ununited. There is an indifferent deposit of callus on the fibula. Of the tibia, fragments are irregularly retained by a deposit of spongy callus. A considerable portion of the bone is dead.

Lieutenant S., "D," 73d Pennsylvania: Chancellorsville, 3d May; admitted hospital, Point Lookout, Md., 14th June; thigh amputated in the lowest third, 28th July, 1863. Recovered.

Contributed by Surgeon A. Heger, U S. Army.

4387. The right tibia and fibula, six months after fracture in the lower thirds. Tolerable union has occurred in the
d. 82. fibula. The tibia has partially united, is carious at the point of fracture and has a very large and complete foliaceous deposit throughout its greatest length.

Sergeant A. C., "B," 2d Maryland: Petersburg, 2d April; admitted hospital, Alexandria, 7th April; amputated in the lowest third of the thigh, after erysipelas, by Brevet Lieutenant Colonel Edwin Bentley, Surgeon, U.S.Vols, 11th October, 1865.

Contributed by the operator.

2195. The left tibia, fractured in the upper third, six weeks after injury. Eighteen dead fragments are mounted with
d. 83. the specimen. Much suppuration has occurred, and a trace of ossific deposit is seen.

Private R. L. W., "C," 15th Ohio, 24: Mission Ridge, 25th November, 1863: admitted hospital, Nashville, 31st January; amputated in lowest third of the thigh by Acting Assistant Surgeon P. Peter, 1st February; discharged, 28th July, 1864.

Contributed by the operator.

1662. The upper portions of the bones of the left leg, one month after injury. The tibia has been perforated below the
d. 84. head, causing many longitudinal fissures, and the fibula has been partially fractured, with the same longitudinal splintering, by the same missile.

Private F. B. R., "H," 7th New Hampshire: Morris Island, S. C., 1st July; amputated in the lowest third of the thigh for secondary hæmorrhage, New York Harbor, 1st August; died, 11th August, 1863.

Contributed by Assistant Surgeon R. Bartholow, U. S. Army.

3053. The left tibia, two months after injury. The bone is shattered in its upper third without union, but with some
d. 85. callus effused. There has been much suppuration.

Private M. V., "I," 15th New York, 23: wounded, 19th May; admitted hospital, Washington, 25th May; amputated in lowest third of the thigh by Surgeon R. B. Bontecou, U. S. Vols., 28th July, 1864.

Contributed by the operator.

2097. The bones of the left leg, three months after injury. The tibia was fractured in its upper third and a large piece
d. 86. of bone entirely killed by a fragment of shell. Necrosis destroyed the vitality of the volume of the shaft, leaving a very slight formation of callus. A sequestrum, long and narrow, may be seen through cloacæ for a great distance.

Private J. J., "G," 149th New York, 26: Lookout Mountain, 28th October; admitted hospital, Bridgeport, Ala., 2d November, 1863; amputated in the lowest third of the thigh by Surgeon William Varian, U. S. Vols., 21st January, 1864. Recovered.

Contributed by Acting Assistant Surgeon H. T. Legler.

2035. The bones of the right leg, three months after injury. The fibula was dislocated and the tibia fractured in its
d. 87. upper third. Partial union has occurred on the posterior border of the tibia.

Private J E., "E," 1st Wisconsin: Chickamauga, 19th September; admitted hospital, Murfreesboro', 3d December; amputated in the lowest third of the thigh by Acting Assistant Surgeon W. E. Whitehead, 25th December, 1863. Convalescent.

Contributed by the operator.

982. The right tibia and fibula, transversely fractured in the upper third, and the fibula again fractured in the middle
d. 88. third by gunshot. The want of comminution is marked and remarkable. The lowest third of the tibia is missing.

Private J. J., "B," 27th Connecticut: Fredericksburg, 13th December; admitted hospital, Washington; amputated in the lowest third of the thigh, 23d December, 1862.

Contributed by Acting Assistant Surgeon W. A. Harvey.

366. The upper portions of the bones of the left leg, with fracture and partial loss of substance on their adjacent
d. 89. faces below the knee. Amputation has occurred in the thigh.

Received, without history, from Frederick, Md.

1620. The upper portions of the bones of the left leg. The tibia is much comminuted in the upper third by a conoidal
d. 90. ball. The fibula was transversely fractured by the weight of the body.

Private M., 24th Massachusetts: near Newbern, N. C.; underwent secondary amputation of thigh. Recovered.

Contributed by Surgeon F. G. Snelling, U. S. Vols.

3604. The right tibia and fibula, broken, with comminution, by a conoidal ball in their upper thirds,
d. 91. and amputated in the lowest third of the thigh. The highest line of fracture on the inner side is three inches below the articular surface of the inner tuberosity of the tibia. On the outer side of that bone a minute fissure runs up one inch higher. The fracture of the fibula is somewhat lower. *See figure* 133.

Brigadier General T. W. S., U. S. Vols., Colonel, 3d U. S. Artillery: Port Hudson, Miss., 27th May; fragments removed and wound sewed up by a continued suture; reached New Orleans, and contents of sac (?) evacuated, 2d June; amputation performed by Professor Warren Stone, middle of June, 1863. Recovered.

Contributed by Professor F. Bacon, of Yale College.

See 4627, **XXVI.** A 1, 33.

FIG. 133. Both bones of the right leg, shattered by conoidal ball. *Spec.* 3604.

2172. The lower thirds of the left fibula, three months after injury. The fibula was partially
d. 92. fractured in its lowest third by a grape shot which lodged in the calf. Missile removed after five weeks. There is a loss of a portion of the substance of the bone, but the union is quite firm.

Private J. T., "K," 30th Indiana, 26: Chickamauga, 19th September; admitted hospital with gangrenous abscess, Nashville, 5th November; amputated at the junction of the lower thirds of the thigh, 18th December; died from secondary hæmorrhage, 31st December, 1863.

Contributed by Surgeon J. W. Foye, U. S. Vols.

3474. The upper portion of the right tibia, six weeks after injury. The bone was perforated just
d. 93. below the head, splintering the upper third. The bony track is carious.

Private W. E., "I," 14th New York, 35: Cedar Creek, Va., 19th October; admitted hospital, Baltimore, 25th October; amputated in the middle third of thigh by Surgeon T. Sim, U. S. Vols., 29th November, 1864; discharged, 10th April, 1865.

Contributed by the operator.

3893. The bones of the left leg, three months after injury. The tibia was fractured in the upper third. There is some
d. 94. loss of substance, and a portion of the effused callus has been absorbed. The fibula opposite the point of injury has also a deposit of new bone.

Private W. F. G., "H," 2d Mississippi, (Rebel,) 18: Antietam, 17th September; amputated in the middle third of the thigh by Assistant Surgeon R. F. Weir, U. S. Army, 22d December, 1862; died, 15th January, 1863.

Contributed by the operator.

See 3858, **XIII.** A B. f. 60.

2201. The bones of the right leg, four and a half months after fracture in their upper thirds. The fibula has united with
d. 95. some deformity. Some spongy callus has been effused around the tibia, imprisoning a few fragments of dead bone, but without union.

Private H. H. H., "K," 137th New York, 21: Wawhatchie, 28th October, 1863; amputated at the junction of the lower thirds of thigh, Nashville, 8th March, 1864. Recovered.

Contributed by Acting Assistant Surgeon H. C. May.

447. The upper portions of the left tibia and fibula transversely fractured by perforation through their heads by a
d. 96. conoidal ball, not involving the knee joint.

Private J. D., "I," 88th New York: Antietam, 17th September; amputated in the middle third of thigh, 21st October; died, 27th November, 1862.

Contributed by Assistant Surgeon P. Adolphus, U. S. Army.

789. The bones of the left leg, three weeks after injury. The tibia is badly shattered in the upper third by a conoidal
d. 97. ball, and the fibula chipped. The least possible deposit of callus has occurred around the necrosed borders.

Private J. L., 6th Georgia (Rebel): Antietam, 17th September; thigh amputated in the middle third for secondary hæmorrhage, Frederick, 6th October; died from pneumonia, 14th October, 1862.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

1330. The bones of the left leg, ten and a half months after injury. The tibia was perforated below the head by
d. 98. a musket ball. The bony tissue became thickened without by the deposit of spongy callus, at the same time the internal portions wasted by suppuration.

Private W. B. R., "H," 27th New York, 20: Gaines' Mill, Va., 27th June; in hospital, Savage Station, one month; admitted hospital, Philadelphia, 31st July 1862; amputated in the middle third of thigh by Surgeon J. Neill, U. S. Vols., 14th May; transferred, convalescent, 22d June, 1863.

Contributed by Acting Assistant Surgeon H. M. Bellows.

3558. A portion of the right tibia, fractured, with eccentric splintering in the upper third, by a conoidal ball. The
d. 99. bone adjacent to the fractures is greatly necrosed. The upper half of the specimen has been sawn longitudinally.

Private O. V., "B," 9th New Hampshire, 24: wounded, 28th May; admitted hospital, Washington, 4th June; amputated in the middle third of the femur by Assistant Surgeon W. Thomson, U. S. Army, 11th June; heavy sequestrum removed, 15th October, 1864; discharged, healed, 16th June, 1865.

Contributed by the operator.

See 3599, **XIII.** A. B. g. 64.

1149. The shaft of the tibia, amputated in the upper third on account of shattering in the middle third.
d. 100. Lieutenant B., "F," 27th Iowa: Chancellorsville, 3d May; a prisoner ten days; amputated by Surgeon W. H. Twiford, 27th Iowa, Twelfth Corps Hospital, 16th May, 1863.

Contributed by the operator.

1311. The upper portions of the left tibia and fibula, fractured by a shell, the injury having at first been recognized
d. 101. simply as a contusion.

Corporal W. H. C.: Port Hudson, 27th May; admitted hospital, New Orleans, 29th May; a resection of a portion of the right humerus was made, 8th June; amputated in the lowest third of the thigh, 12th June, 1863.

Contributed by Assistant Surgeon P. S. Conner, U. S. Army.

See class **VI.** A. B. c.

3065. The lower thirds of the left tibia, two months after injury. The tibia is shattered by shell in its lowest third.
d. 102. The specimen shows loss of substance, a fragment of necrosed bone in the wound and a sequestrum extending up the shaft. There is a fair coating of callus, but no worthy attempt at repair.

Private J. P., "B," 139th New York, 24: Cold Harbor, 3d June: admitted hospital, Washington, 15th June; amputated by Surgeon R. B. Bontecou, U. S. Vols., 1st August, 1864.

Contributed by the operator.

79. The bones of the left leg, amputated at the place of election, after shattering in the middle third.
d. 103. Private M. C., "G," 107th Pennsylvania.

Contributed by Assistant Surgeon S. H. Storrow, U. S. Army.

858. A section of the left tibia, eight and a half months after contusion by shell. The bone is carious for a space of
d. 104. three and a half by two inches on the inner surface, while on the outer side it is thickened by periosteal deposit.

Reverend J. L., Volunteer Chaplain (Rebel): Fredericksburg, 11th December, 1862; amputated below the knee for gangrene by Dr. Pearson, Lynchburg, 25th August; died, 2d September, 1863.

Contributed by Acting Assistant Surgeon F. Schafhirt.

See classes **XV.** A. B. a.; **XXIII.** A. B.

861. The lower halves of the bones of the left leg, six months after injury. The tibia was fractured by a musket ball
d. 105. in the lowest third, and was firmly united with some deformity. The limb has been strengthened by the adhesion of the fibula through four inches of its course. The shaft of the tibia, however, shows so much suppuration to have occurred that amputation became necessary.

Private D. C. L., "E," 20th Massachusetts: White Oak Swamp, Va., 30th June; admitted hospital, Philadelphia, 13th August, 1862; amputated in the middle third by Acting Assistant Surgeon C. J. Morton, 2d January, 1863.

Contributed by the operator.

4544. The lower thirds of the right tibia, perforated just above the inner malleolus. The ankle joint does not seem
d. 106. to have been primarily involved. The track of the missile is carious, and near the wound there is a slight osseous deposit. Amputation has been performed high up.

Corporal W. A. H., "D," 29th Ohio: admitted hospital, Washington, 15th June; discharged the service, 22d December, 1862.

Contributed by Assistant Surgeon J. S. Billings, U. S. Army.

4546. The greater part of the shaft of the left tibia, shattered for six inches in its upper portion by a conoidal ball
d. 107. which lodged in the right calf.

Private C. K., "E," 16th Michigan, 46: Second Bull Run, 30th August; admitted hospital, Washington, 2d September; flap amputation in the lowest third of the thigh by Surgeon J. C. Dorr, U. S. Vols., 12th; ball removed from right leg, 16th September, 1862; discharged the service, 7th October, 1863.

Contributed by the operator.

716. The lower portions of the bones of the left leg, after secondary amputation near the junction of the lower thirds
d. 108. for fracture of the fibula by a conoidal ball, which is attached, battered.

Private A. L., "D," 9th New York, 21: Second Fredericksburg, 3d May, 1863; amputated by Acting Assistant Surgeon T. H. Dearing, Washington; discharged the service, 16th July, 1864.

Contributed by the operator.

See class **XXVII.** B. B. d.

2558. The upper portions of the bones of the left leg. The tibia received a bullet in front, directly below the tuberosity,
d. 109. which crushed in the bone and caused a long oblique fracture.

Private A. H. H., "B," 142d Pennsylvania, 23: Fredericksburg, 13th December; amputated in the thigh by Surgeon H. Bryant, U. S. Vols, Washington, 25th December, 1862; secondary hæmorrhage, 7th January; died, exhausted, 10th January, 1863.

Contributed by the operator.

4703. The bones of the left leg, chiefly interesting from a nearly transverse fracture in the middle third of the tibia,
d. 110. while the missile has lodged in the upper third, with longitudinal fractures communicating.

Contributor and history unknown.

See class **XXVII.** B. B. d.

203. The lower halves of the bones of the left leg. A bullet from the right oblique front shattered the tibia in the
d. 111. lowest third without touching the fibula.

Corporal L. J. T., "K," 81st New York, 21: Cold Harbor, 2d June; admitted hospital, Washington, 10th; amputated by Surgeon N. R. Mosely, U. S. Vols., 11th June; discharged the service, 30th September, 1864

Contributed by the operator.

204. The greater portion of the left fibula, fractured, with some loss of substance, at the junction of the lower thirds.
d. 112. Private S. S., "K," 52d New York: Cold Harbor, 3d June, 1864; believed to have been amputated in the lowest third of the thigh by Surgeon —— Cornish, 15th Massachusetts; result unknown, but probably fatal.

Contributed by the operator.

206. A large portion of the shaft of the right tibia, shattered in the middle third by the transverse passage of a bullet
d. 113. and amputated at the junction of the upper thirds. Periosteal thickening has occurred on the adjacent fragments.

Corporal J. S. McG., "H," 8th Pennsylvania Reserves, 20: Fredericksburg, 13th December; admitted hospital, Washington, 23d; amputated by Acting Assistant Surgeon D. Weisel, 28th December, 1862; died of pneumonia, 5th February, 1863.

Contributed by the operator.

3176. The upper halves of the bones of the left leg. Several inches of the posterior portion of the tibia has been carried
d. 114. away by a bullet from the right, and the fibula has been consecutively transversely fractured.

Private W. H. W., "F," Purnell Legion, Maryland Volunteers, 27: near Richmond, 30th May; amputated in the lowest third of the thigh by Assistant Surgeon J. B. Baxter, 16th Maine, 9th June; admitted hospital, Washington, 12th June, 1864.

Contributed by the operator.

2289. The bones of the left leg, with the tibia obliquely fractured and fissured at very great length in the two upper
d. 115. thirds. There is a small osteophyte on the tibia near the fibular articulation.

Private E. R. H., "F," 4th Virginia Cavalry, (Rebel,) 22: Wilderness, 10th May; amputated in the field by Acting Assistant Surgeon C. P. Bigelow, 18th; died, 25th May, 1864.

Contributed by the operator.

581. A portion of the shaft of the left tibia, after amputation below the knee. The bone is longitudinally fractured in
d. 116. its middle third with comminution, but without complete solution. The fragments, which retain their position, are partly necrosed and slightly bound by callus.

Sergeant R. A. M., "I," 4th Pennsylvania Reserves: Fredericksburg, 13th December; admitted hospital, Washington, 23d; amputated, 29th December, 1862; died from hæmorrhage, 8th January, 1863.

Contributed by Surgeon H. Bryant, U. S. Vols.

3758. The upper half of the left tibia, some weeks after injury. The bone has been fractured in its upper third by a
d. 117. bullet from the rear. A large fragment, which remains in position, is partly necrosed.

Corporal A. A. L., "L," 8th Iowa Cavalry, 27: Cassville, Ga., 20th May; admitted hospital, Nashville, 31st May; disarticulated, the condyle being sawn off, by Surgeon R. R. Taylor, U. S. Vols., 13th June; died of pyæmia, 16th June, 1864.

Contributed by Assistant Surgeon C. C. Byrne, U. S. Army.

See class **XIV.** A. B. e.

500. The upper half of the left tibia, fractured obliquely with comminution by a round ball which penetrated to the
d. 118. medullary canal, where a portion of it yet remains. There is a cavity in the shaft, one inch in depth and one-third greater in its superficial diameter, which is necrosed. The posterior surface of the shaft is covered with a moderate layer of new osseous tissue. The integument over the wound of entrance, enlarged by sloughing, is preserved, attached.

Private P. F., "D," 11th U. S. Infantry, 20: before Richmond, 29th June; admitted hospital, Philadelphia, 30th July; bullet extracted, 1st August; disarticulated at the knee by Acting Assistant Surgeon R. S. Kenderdine, 6th August; died, exhausted, 6th October, 1862.

Contributed by the operator.

See classes **XIV.** A. B. e.; **XXVII.** B B. d.

748. The amputated portions of the bones of the left leg. The fibula has been fractured, with loss of substance of
d. 119. one inch, in the lowest third. The adjacent portion of the tibia is superficially necrosed, and increased periosteal action is shown on the superior portion of the fibula.

Private H. L., "A," 6th Pennsylvania Reserves, 25: Antietam, 17th September; amputated in the upper third by Acting Assistant Surgeon A. V. Cherbonnier, Frederick, 4th December, 1862; femur amputated by Surgeon J B. Lewis, U. S. Vols., 15th January; femoral ligated for secondary hæmorrhage, 4th February; died, lungs crowded with tubercles, 31st March, 1863.

Contributed by Surgeon H. S. Hewit, U. S. Vols.

See 3818, **XIII.** A. B. f. 61; 3983, **XVIII. II.** A. B. b. 38

For other illustrations, see 1171, **XIII.** A. B. d. 14; 30, **XIII.** A. B. d. 19; 3682, **XIII.** A. B. f. 27; 1051, **XIII.** A. B. g. 34; 2867, **XV.** A. A. c. 3; 3546, **XV.** A. A. c. 6; 4497, **XV.** A. A. d. 33; 3269, **XV.** A. B. c. 4; 3337, **XV.** A. B. c. 9; 2108, **XV.** A. B. c. 18; 2155, **XV.** A. B. c. 20; 2362, **XV.** A. B. e. 2.

e. Other Operations.

412. Six small, partly necrosed fragments, removed from the shaft of the tibia.

e. 1. Private J. B., "D," 5th U. S. Artillery: Gaines' Mill, Va., 27th June; specimen removed, Baltimore, 6th September, 1862. Recovered with slight deformity.

Contributed by Surgeon L. Quick, U. S. Vols.

2362. Five small fragments, removed, partially by excision, from a fractured left fibula.

e. 2. Private F. T., "D," 63d Pennsylvania: Wilderness; admitted hospital, Washington, 25th May; amputated in the middle third, 17th August, 1864. Recovered.

Contributed by Surgeon N. R. Mosely, U. S. Vols.

See class **XV.** A. B. d.

3250. Fragments, from the upper portion of the right fibula, removed for gunshot fracture.

e. 3. Private J. B., "K," 170th New York, 44: admitted hospital, Washington, 28th August; excised by Acting Assistant Surgeon W. H. Ensign, 12th September; posterior tibial ligated for secondary hæmorrhage by Surgeon N. R. Mosely, U. S. Vols., 17th; amputated in the lowest third of the thigh, 18th; died, 21st September, 1864.

Contributed by Acting Assistant Surgeon H. G. Bates.

See 3269, **XV.** A. B. c. 4.

428. Eleven fragments of bone, removed from the left tibia.

e. 4. Private J. McQ., "E," 82d Pennsylvania, 20: wounded, 1st July; specimen removed, Baltimore, 1st September; firm union with slight discharge, 1st November. 1862.

Contributed by Surgeon L. Quick, U. S. Vols.

1479. Three and a half inches of the middle third of the right fibula, in three fragments, removed by partial excision on
e. 5. account of imperfect union following fracture.

Private G. D. W., "D," 30th Massachusetts: Cedar Creek, Va., 19th October, 1864; excised by Acting Assistant Surgeon W. P. Moon, Philadelphia, 2d March, 1865.

Contributed by Acting Assistant Surgeon W. Scott Hendrie.

258. A large fragment of the right tibia, five inches in length, removed two weeks after injury.
e. 6. Private J. B., "C," 2d New Jersey, 26: wounded, 27th August; specimen removed by Acting Assistant Surgeon E. Schumo, 15th September, 1862.
Contributed by Surgeon A. Wynkoop, U. S. Vols.
See class **XV.** A. B. e.

1280. Four inches of fragments, removed from the tibia.
e. 7. Contributor and history unknown.

For other illustrations, see 3468, **XV.** A. B. d. 71.

f. STUMPS.

3361. Two sections of the stump of the left fibula, removed two months after amputation. On admission to hospital
f. 1. half an inch of protruding fibula was removed by the fingers and is not preserved. One week afterward the expanded extremity was taken off, and the other portion removed at the same time because insufficiently protected.
Private J. I. T., "A." 29th Pennsylvania, 21: wounded and leg amputated, Resaca, Ga., 15th May; admitted hospital, Nashville, 8th July; specimen removed, 16th July, 1864.
Contributed by Acting Assistant Surgeon H. C. May.

3263. One inch of the extremities of the bones in the stump of the leg, sawn off for necrosis and protrusion of half the
f. 2. specimen.
Private S. S., "H," 4th Michigan: Petersburg, 18th June; amputated City Point, 20th; admitted hospital, Washington, 24th June; specimen removed, 9th July, 1864. Recovered.
Contributed by Acting Assistant Surgeon R. Ottman.

281. Two inches of the stump of the right tibia and fibula, removed, apparently, for protrusion. The extremities are
f. 3. diseased.
Contributed, without history, by Surgeon J. T. Hodgen, U. S. Vols.

4329. Two and a half inches of the stump of the right leg, amputated for want of vitality. The specimen appears to
f. 4. have become diseased after having first been well rounded, enlarged and firm.
Private G. B., "C," 97th Pennsylvania: Petersburg, 11th July, 1864; amputated for hospital gangrene, New York; reamputated, 16th April, 1865. Recovered.
Contributed by Acting Assistant Surgeon S Teats.
See class **XXIII.** A. B.

4335. Three inches of the stump of the right leg, removed, seven and a half months after the first amputation, for an
f. 5. indolent ulcer.
Private H. P., "A," 59th New York: foot shattered, Spottsylvania C. H., 17th May; amputated in the lowest third, 3d August, 1864; reamputated by Acting Assistant Surgeon S. Teats, New York, 26th March, 1865. Recovered.
Contributed by the operator.

1969. A section of the right tibia and fibula, after amputation. The tibia is much necrosed in the shaft, around which
f. 6. an imperfect involucrum has been formed.
Received after Gettysburg.

4330. The stump of the left tibia and fibula, with an excellent deposit of callus, but carious internally.
f. 7. Private F. K., "E," 1st Vermont Heavy Artillery: leg amputated, 9th September, 1864; reamputated by Surgeon B. A. Clements, U. S. Army, New York, 15th February; discharged, recovered, 8th August, 1865.
Contributed by Acting Assistant Surgeon S. Teats.

1526. Six inches of the stumps of the bones of the left leg, reamputated for necrosis of the tibia. The specimen shows a
f. 8. massive involucrum, except on the anterior border, where a heavy sequestrum is visible. The bones are joined by an osseous deposit at their lower extremities, which are rounded.
Private J. C., "C," 7th Wisconsin, 21: ankle fractured, Petersburg, 18th June; amputated on the field in the lowest third; admitted hospital, Washington, 1st July, 1864; reamputated in the upper third by Surgeon Benjamin B. Wilson, U. S. Vols., 25th February, 1865. Recovered.
Contributed by the operator.

3411. Four inches of the necrosed stump of the tibia, removed four and a half months after the first amputation.
f. 9. C. T. N., "C," 1st Massachusetts Heavy Artillery, 29: admitted hospital and leg amputated in the lowest third for fracture of ankle, Washington, 22d May; specimen removed by Surgeon N. R. Mosely, U. S. Vols., 14th November, 1864; discharged, 29th January, 1865.
Contributed by Acting Assistant Surgeon J. M. Downs.

2494. Four inches of the stumps of the left tibia and fibula, after death from pyæmia, eighteen days after amputation in
f. 10. the lowest third. The specimen shows the extremities denuded, for one-third of an inch, of periosteum, which is thickened and loosened above that line. There was no reparative attempt at the extremities of the bones. The tibia has been sawn longitudinally to display the recent pathological changes.

Private J. G. M., "L," 1st New York Artillery, 23: wounded, West Virginia, 18th May; admitted hospital, Washington, 20th; amputated by Assistant Surgeon G. A. Mursick, U. S. Vols., 21st May; died, 8th June, 1864.

Contributed by the operator.

2923. The stumps of the bones of the right leg, three weeks after amputation in the lowest third. A ring of necrosis
f. 11. surrounds each extremity, and there is no healthy action.

Corporal A. W. D., "F," 14th North Carolina (Rebel): ankle lacerated by a round shot and leg amputated before Washington, 12th July; admitted hospital, Washington, 14th July; amputated below the tubercle, for protrusion following gangrene, by Acting Assistant Surgeon T. L. Leavitt, 4th August; died, 10th August, 1864.

Contributed by the operator.

See class **XXIII.** A. B.

3878. The bones of the stump of the left leg, thirty-six days after a wound in the ankle and amputation in the lowest
f. 12. third. A minute sequestrum, nearly separated, is seen on the extremity of the tibia, which is carious and without callus. Knee joint involved.

Private B. S., "I," 17th Pennsylvania Cavalry, 28: Funkstown, Md., 10th July; admitted hospital, Frederick, 21st July; died, 16th August, 1863.

Contributed by Acting Assistant Surgeon J. C. Shimer.

4327. The extremities of the bones of the left leg, tolerably well rounded and united, but carious.
f. 13. Private F. F., "C," 5th New York Heavy Artillery, 17: ankle fractured by a conoidal ball, Snicker's Gap, Va., 18th July; admitted hospital from Frederick, Md., New York, 21st December, 1864; reamputated at the junction of the upper thirds. Discharged.

Contributed by Acting Assistant Surgeon S. Teats.

See class **XVI.** A. B. f.

3318. The bones of the stump of the left leg, seven weeks after amputation in the upper third. Sequestra are about
f. 14. separating from each bone. There is little healthy action.

Private H. L., "A," 183d Pennsylvania, 18: ankle fractured, Wilderness, 8th May; admitted hospital, Washington, 28th May; amputated by Surgeon N. R. Mosely, U. S. Vols., 27th August; died, 14th October, 1864.

Contributed by the operator.

4328. Carious extremities of the bones of the left leg, seven and a half months after amputation.
f. 15. Private C. L., "A," 142d New York, 48: ankle fractured by shell and amputated in the lowest third, near Fair Oaks, Va., 27th October, 1864; specimen amputated by Acting Assistant Surgeon S. Teats, New York, 15th June; transferred to New York Harbor, 12th August, 1865.

Contributed by the operator.

See class **XVI.** A. B. f.

2454. Three inches of the stump of the right tibia and fibula in the lowest third, four months after amputation. A
f. 16. large spongy involucrum surrounds a small sequestrum of the tibia. The fibula is carious.

Private C. F., "I," 111th New York: South Side Railroad, Va., 31st March; amputated one inch above the ankle, Washington, 3d May; specimen amputated by Surgeon B. B. Wilson, U. S. Vols., 6th September, 1865. Healed.

Contributed by the operator.

See class **XVI.** A. B. f.

3155. The stump of the left tibia and fibula, after amputation in the middle third. The tibia is very carious, especially
f. 17. on the anterior surface.

Private I. H., "H," 1st North Carolina Cavalry (Rebel): shell wound of ankle, Gettysburg, 1st July, 1863; amputated by Dr. J. B. Carroll, Petersburg; died, 2d April, 1864.

Contributed by Acting Assistant Surgeon F. Schafhirt.

See class **XVI.** A. B. f.

4336. Four inches of the bones of the stump of the left leg, seven months after amputation. The extremities are
f. 18. united by osseous matter and tolerably well rounded, but carious.

Private F. P. B., "C," 55th Massachusetts, 21: foot fractured, Spottsylvania, 18th May; amputated in the lowest third, 19th May; reamputated by Acting Assistant Surgeon S. Teats, New York, 25th December, 1864; discharged, 3d April, 1865.

Contributed by the operator.

See class **XVII.** A. B. e.

3696. Seven inches of the right tibia and fibula, reamputated at the point of election. The specimen shows the fibula
f. 19. well rounded and united at its extremity to the tibia. There is a sequestrum in the tibia, six inches in length, ready for extraction, and over the upper part of the anterior border the involucrum is wanting.

Private F. G., "A," 6th Wisconsin: reamputated by Surgeon H. Culbertson, U. S. Vols., Madison, Wis., 7th September, 1864. Recovered.

Contributed by the operator.

2757. Two inches of the bones of the stump of the left leg, removed for necrosis eighteen months after the first
f. 20. amputation.

Private J. K., "K," 2d Delaware, 23: foot fractured, Antietam, 17th September; leg amputated, lowest third, 6th October, 1862; admitted hospital, stump unhealed, Philadelphia, 21st March; specimen removed by Acting Assistant Surgeon G. B. Boyd, May, 1864. Recovered.

Contributed by the operator.

See class **XVII.** A. B. e.

1962. A section of the bones of the right leg, three months after amputation in the middle third. Extensive necrosis of
f. 21. the tibia has occurred, and from it a sequestrum six inches in length was withdrawn a few days before death. The specimen shows the very extended ravages of disease.

Private W. H. G., "K," 8th Pennsylvania, 20: foot fractured by conoidal ball, Gettysburg, 3d July; amputated in the lowest third, 1st August; died exhausted, 5th November, 1863.

Contributed by Acting Assistant Surgeon E. P. Townsend.

2079. The bones of the stump of the left leg, with necrosis of the extremities, probably after death from pyæmia.
f. 22. Contributor and history unknown.

3320. Five inches of the right tibia, removed from the extremity of a stump for necrosis. The specimen shows much
f. 23. disease of the bone, with no attempt at repair.

Sergeant J. Q., "K," 170th New York, 45: admitted hospital, amputated at the lowest third, 10th September; specimen removed for gangrene by Surgeon N. R. Mosely, 21st October; died, 5th November, 1865.

Contributed by Acting Assistant Surgeon S. Graham.

See class **XXIII.** A. B.

2212. Four and a half inches of the stump of the left tibia, twenty-nine weeks after amputation in the middle third.
f. 24. An attack of pyæmia was survived in this case. The extremity is tolerably well rounded, and in the recent specimen the medullary orifice was covered by a thin plate of bone Reamputation was performed on account of excessive pain in the stump with contraction of the muscles. The recent case exhibited vascularity, which cannot be shown in the dried specimen.

Private D. O'C., "C," Cobb's Legion, (Rebel,) 28: ankle fractured and leg amputated, Madison C. H., 21st September; admitted hospital, Washington, 25th September; suffered pyæmia, 16th—29th October, 1863; reamputated, 14th April; transferred to Old Capitol Prison, 4th October, 1864.

Contributed by Surgeon John A. Lidell, U. S. Vols.

See class **XVI.** A. B. f. 183.

3773. The bones of the right leg, amputated in the middle third. The stump shows no effort at repair, and both bones
f. 25. are necrosed in their greatest length, the tibia having probably been exposed.

From a case of hospital gangrene, Nashville.

See class **XXIII.** A. B.

3125. The bones of the stump of the left leg, amputated in the middle for fracture of foot. The extremities of the bones
f. 26. are much necrosed, without attempt at repair.

Sergeant H. H., "B," 109th New York, 26: admitted hospital, gangrenous, and amputated by Acting Surgeon A. Ansell, Washington, 20th July; died, 26th August, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

See class **XXIII.** A. B.

1097. The stump of the bones of the right leg, amputated in the middle third. The only observable pathological change
f. 27. is a slight necrosis at the extremity of the tibia.

Contributed, without history, by Assistant Surgeon R. F. Weir, U. S. Army.

3340. The bones of the left leg, one month after amputation in the middle third. The extremities are necrosed, and
f. 28. there was attempt at osseous deposit. A slight attack of gangrene occurred, and the knee was occupied by a diffuse abscess.

Private A. J. W., "A," 8th New York Heavy Artillery: ankle fractured, Cold Harbor, 3d June; admitted hospital, Alexandria, 7th; amputated by Surgeon E. Bentley, U. S. Vols., 9th June; died, 10th July, 1864.

Contributed by the operator.

See 2497, **XVI.** A. B. f. 15.

795. f. 29. The stumps of the right tibia and fibula, amputated in the middle third. The specimen shows ulceration of the extremities.

Contributed by Surgeon H. S. Hewit, U. S. Vols.

3108. f. 30. The bones of the stump of the right leg, amputated in the middle third, ten months after the operation. Reamputation was performed for sloughing and necrosis of the stump. The specimen shows the union of the extremities of the bones and the disease leading to the second operation.

Private E C., "F," 103d Ohio, 20: Chickamauga, 19th September; amputated, 4th October, 1863; admitted hospital, Columbus, Ohio, 20th June; amputated above the knee by Assistant Surgeon G. M. Sternberg, U. S. Army, 5th August, 1864; discharged, 18th March, 1865.

Contributed by the operator.

4243. f. 31. The stump of the left tibia and fibula in the middle third, said to have been entirely healed at the time of the subject's death from chronic diarrhœa, five months after the amputation. The specimen, however, shows the extremity and posterior surface of the tibia necrosed.

Private W. J. H., "G," 33d Mississippi, (Rebel,) 18: Peach Tree Creek, Ga, 20th July; admitted hospital with chronic diarrhœa, Nashville, 9th December; died, 23d December, 1864.

Contributed by Surgeon R. R. Taylor, U. S. Vols.

See 4244, **XXI.** A. B. b. 9.

4225. f. 32. Five inches of the stump of the right tibia, removed five months after amputation. The specimen shows a large sequestrum extending its entire length, embraced by an involucrum, which is wanting on the anterior border. The fibula, well rounded, has joined its extremity to the tibia. *See figure* 134.

Private D. S. C., "A," 47th Pennsylvania, 27: wounded and amputated, Cedar Creek, 19th October, 1864; specimen removed by Acting Assistant Surgeon W. G Smull, Baltimore, 25th March; discharged, healed, 31st May, 1865.

Contributed by Assistant Surgeon G. M. McGill, U. S. Army.

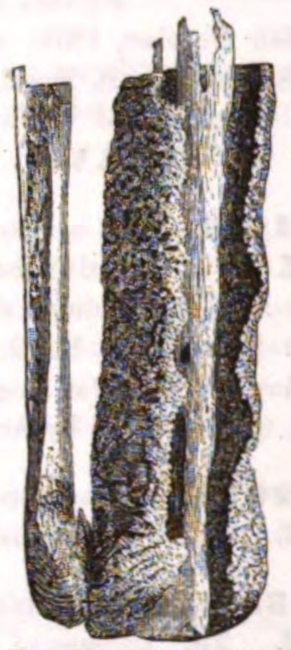

FIG. 134. Bony stump of right leg, five months after amputation. *Spec.* 4225.

3714. f. 33. The bones of the stump of the left leg, amputated at the junction of the upper thirds, and reamputated at the lowest third of the thigh for protrusion and necrosis of the tibia. A sequestrum of three inches, nearly detached, is contained within a heavy involucrum that is deficient on its anterior border. *See figure* 135.

Private F. H. H., "H," 2d Pennsylvania; wounded, 11th July; amputated, Hampton, Va., 18th July; reamputated, Beverly, N. J., 6th December, 1864. Recovered.

Contributed by Assistant Surgeon C. Wagner, U. S. Army.

FIG. 135. Bones of the left leg, five months after amputation. *Spec.* 3714.

2695. f. 34. The stump of the left tibia, amputated in the middle third. The specimen, which is seven inches in length, shows an attempt at rounding at the extremity, but caries and necrosis of the centre. The inner side of the shaft, midway, is occupied by a large, partially detached sequestrum. Reamputation appears to have been performed just below the knee.

Contributor and history unknown.

4334. f. 35. The extremities of the right tibia and fibula, twelve weeks after amputation. The specimen shows caries of the extremities.

Private H. C. M., "H," 116th Ohio: amputated, Petersburg, 2d April; admitted hospital, New York, 13th June; amputated in the middle third by Acting Assistant Surgeon S. Teats, 23d June, 1865. Recovered.

Contributed by the operator.

2778. f. 36. The stump of the right tibia and fibula, with excessive hyperostosis of the extremities of both bones. "The extraordinary osseous formation at the divided extremities of the tibia and fibula is due to an exaggeration of the natural process by which the extremities of bones are rounded off, and presents the histological characters of ordinary callus." *See figure* 136.

Private W. N., "A," 71st Pennsylvania: ankle fractured and leg amputated in the middle third, White Oak Swamp, Va., 29th June; admitted hospital, Philadelphia, from Richmond, 30th July; a slender sequestrum from the tibia removed, 13th November, 1862; reamputated at the knee joint by Acting Assistant Surgeon T. G. Morton, 27th August, 1863. Recovered with a useful and firm stump.

Contributed by the operator.

See 668, **XV.** A. B. g. 26; 2458, **XXV.** A. B. b. 162; 4628, **XXVI.** A. 2, 99.

See classes **XIV.** A. B. e.; **XVI.** A. A. e.

FIG. 136. Hyperostosis of bones of the right leg, after amputation. *Spec.* 2778.

3883. The stump of the right tibia and fibula, much diseased, the knee joint also having ulcerated.
f. 37. Private B. T., "C," 28th Pennsylvania, 33: fractured ankle, Antietam, 17th September; admitted hospital, Frederick, 29th September; amputated in the middle third, 4th October; necrosed extremities of bones came away, 5th November; gangrene appeared, 25th December, 1862; erysipelas occurred, 1st April; knee opened, 9th; thigh amputated in the lowest third, 14th April; convalescent, 18th May, 1863. Recovered.

Contributed by Assistant Surgeon R. F. Weir. U. S. Army.

See classes **XVI.** A. B. f.; **XXIII.** A. A.; **XXIII.** A. B.

2880. The bones from the stump of the left leg, one month after amputation, necrosed at the extremities. No healthy
f. 38. action has occurred.

Sergeant J. B., "H," 7th New York Heavy Artillery, 21: wounded, 16th June; admitted hospital, amputated in the lowest third, with protruding tibia, Washington, 28th June; amputated in the middle third by Acting Assistant Surgeon F. Hall, 16th July, 1864. Recovered.

Contributed by the operator.

1979. The stump of the left tibia and fibula, amputated in their upper thirds. Necrosis has invaded the entire remainder
f. 39. of the tibia, and a small sequestrum about to separate is seen on the extremity. A very trivial deposit of callus is observed. The knee joint has suppurated.

Received after Gettysburg.

3657. The bones of the stump of the left leg, three months after amputation in the upper third. A sequestrum in each
f. 40. bone is on the point of detachment, and firm partial involucra are seen.

Sergeant H. W., "E," 125th New York: ankle fractured by conoidal ball, Deep Bottom, Va., 16th August; amputated for secondary hæmorrhage, Philadelphia, 10th September; died from exhaustion and pneumonia, 7th December, 1864.

Contributed by Acting Assistant Surgeon G. P. Sargent.

See 3658, **XVI.** A. B. f. 91.

2604. The stump of the left tibia and fibula in the upper third, believed to have been reamputated in the thigh for
f. 41. suppuration of the extremities.

Contributor and history unknown.

3330. The stump of the left tibia, four and a half months after amputation in the upper third. The stump is well
f. 42. rounded, but has a carious centre, with a moderate deposit of callus on the posterior aspect.

Private W. M., "I," 27th Michigan, 31: wounded and amputated, Wilderness, 10th May; sloughing; admitted hospital, Washington, 14th May; amputated in the lowest third of the right thigh by Acting Assistant Surgeon C. T. Trautman, 20th September; died from exhaustion, 4th October, 1864.

Contributed by the operator.

2897. The bones of the stump of the left leg in the upper third, one month after amputation. The specimen is necrosed.
f. 43. Corporal H. G. B., "B," 37th Wisconsin, 21: leg fractured and amputated before Petersburg, 16th June; amputated in the middle third of the femur, for sloughing of the stump, by Surgeon N. R. Mosely, U. S. Vols., 21st July; died, 3d August, 1864.

Contributed by Acting Assistant Surgeon H. G. Bates.

1975. The stumps of the left tibia and fibula, amputated in their upper thirds, with the lowest portion of the femur. The
f. 44. specimen shows necrosis of the ends of the bone and involvement of the knee joint.

Private J. T. D., "A," 53d Virginia, (Rebel,) 26: leg fractured, Gettysburg, 2d July; amputated in the middle third, 4th July; three inches necrosed tibia removed, 8th October; thigh amputated, 9th October; died, 5th November, 1863. It is somewhat questionable whether this specimen and history belong together; but the specimen, undoubtedly, illustrates a very similar case.

Contributed by Acting Assistant Surgeon E. A. Kœpner.

See 1963, **XIII.** A. B. f. 59.

1996. The lower portion of the left femur, with the upper portions of the tibia and fibula. The leg has been amputated,
f. 45. as seen in the specimen, sloughing has probably occurred and reamputation followed in the lowest third of the thigh.

Contributor and history unknown.

3574. The tibia and fibula, from the stump of the left leg, amputated in the upper third. The extremities of both bones
f. 46. are carious, and no reparative effort has been made.

Private P. M., "H," 6th Wisconsin, 23: admitted hospital, amputated, Washington, 26th May; died, exhausted, 6th July, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

1977. The upper portion of the left tibia, evidently a stump long after operation. The bone is very carious, and the
f. 47. knee joint involved.
Received, without history, from Gettysburg.

280. The stump of the right tibia and fibula, amputated through the tubercle.
f. 48. Contributed by Surgeon J. T. Hodgen, U. S. Vols.

3445. The stump of the left tibia and fibula, forty days after amputation. The specimen shows a deposit of callus on
f. 49. the posterior surface, but an absence of all reparative action on the anterior.
Private B. G. W., "H," 19th Maine, 19: wounded and amputated, 15th October; amputated in the lowest third of the thigh by Surgeon E. Bentley, U. S. Vols., Alexandria, 24th November, 1864.
Contributed by the operator.
See 3446, **XVIII. III.** A. B. a. 9; 3447, **XXI.** A. B. b. 6; 3448, **XXI.** A. B. b. 8.

4172. The bones of the stump of the left leg, nineteen months after amputation in the lowest third. Both bones are
f. 50. necrosed nearly their entire lengths, and the dead shafts are surrounded by a quite complete involucrum. The extremity of the fibula is roughened, but softened, as if carious. The tibia approaches roundness, but the extremity is incomplete, exhibiting the end of the sequestrum. The size of the involucrum approaches hypertrophy.
Private W. M., "I," 72d Pennsylvania, 24: left foot, Antietam, 17th September; leg amputated, 27th September, 1862; thigh amputated lowest third by Acting Assistant Surgeon R. J. Levis, Philadelphia, 28th April, 1864.
Contributed by the operator.
See 2748, **XXI.** A. B. b. 26.
See class **XVII.** A. B. e.

g. SEQUESTRA.

1111. A small fragment of necrosed bone, removed from the tibia seven months after injury.
g. 1. Private J. B., "F," 27th Indiana, 27: conoidal ball lodged in the tibia, Antietam, 17th September, 1862; the missile and fragments of bone were removed at various times in the succeeding six months; specimen extracted by Surgeon L. Quick, U. S. Vols., Baltimore, 27th April, 1863.
Contributed by Acting Medical Cadet S. D. Twining.

461. Fourteen minute fragments of necrosed bone, from a fractured tibia.
g. 2. Private W. H. A. D., "K," 63d Pennsylvania, 24: White Oak Swamp, Va., 30th (probably Gaines' Mill, 27th) June; admitted hospital, Philadelphia, 2d July; specimen removed, 5th August, 1862; died, 26th January, 1863.
Contributed by Surgeon A. B. Hasson, U. S. Army.

704. A small sequestrum, probably from the stump of the tibia.
g. 3. Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

429. A small fragment of necrosed bone, from the fractured tibia of P. F., 7th August, 1862.
g. 4. Contributed by Surgeon L. Quick, U. S. Vols.

4222. Four small pieces of necrosed bone, from Sergeant J. M., "M," 1st Maryland Cavalry.
g. 5. Contributor and history unknown.

4353. Seven fragments of necrosed bone, from the right tibia.
g. 6. Private I. T., "A," 7th U. S. Infantry, 27: Gettysburg, 2d July, 1863; specimen removed by Assistant Surgeon P. S. Conner, U. S. Army, Fort Columbus, N. Y., 28th January, 1865; discharged the service convalescent, 30th June, 1865.
Contributed by the operator.

1355. Ten fragments of dead bone, from the upper third of the left tibia.
g. 7. Sergeant F. A. B., "A," 82d New York, 25: Wilderness, 6th May; admitted hospital, New York, 27th September; specimen removed by Acting Assistant Surgeon S. Teats, 25th October, 1864; still under treatment, 4th May, 1865.
Contributed by the operator.

1766. Twelve fragments of sequestra, removed from the upper portion of the right tibia.
g. 8. Sergeant J. G., "B," 26th Wisconsin: tibia fractured by round ball, Chancellorsville, 2d May; admitted hospital, 15th June; specimen removed by Surgeon D. W. Bliss, U. S. Vols., 30th October, 1863.
Contributed by the operator.

3129. A small semi-circular sequestrum, from the stump of a protruding tibia after gangrene.
g. 9. Private A. P., "E," 37th Wisconsin, 37: Petersburg, 18th June; leg amputated, 19th; admitted hospital, Washington, 24th June; specimen removed, 22d August, 1864. Recovered.
Contributed by Acting Assistant Surgeon W. H. Ensign.
See class **XXIII.** A. B.

2237. A crown-shaped exfoliation, removed from the lower extremity of a resected tibia.
g. 10. Private J. H., "A," 127th Pennsylvania, 47: tibia fractured by a conoidal ball, Fredericksburg, 13th December; the entire shaft of the tibia, from just below the tubercle for seven inches, was excised in the field; admitted hospital, Washington, 26th December, 1862; specimen removed, 26th February; the tibia did not reproduce itself, and the fibula did not enlarge sufficiently to be of service; enlistment expired, 1st May, but he remained in hospital until 12th October, 1863, when he went home with a healed but useless leg.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.
See class **XV.** A. A. C.

104. A crown-shaped sequestrum, an inch and a half in length, removed from the right tibia.
g. 11. Corporal C. W. A., "G," 62d New York, 20: Cedar Creek, Va., 19th October; admitted hospital, Baltimore, 24th October, 1864; specimen removed, 25th February; transferred to Philadelphia, 5th April, 1865.
Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

3107. A spicula of tibia, three inches in length.
g. 12. Private M. C., 12th U. S. Infantry: Second Bull Run, 29th August, 1862; specimen removed, 12th July, 1863. Convalescent.
Contributed by Acting Assistant Surgeon P. Middleton.

2123. An irregular sequestrum, two inches long by one broad, from the middle third of the left tibia, eight months after
g. 13. injury.
Corporal C. B. F., "E," 16th Massachusetts, 33: Gettysburg, 2d July; admitted hospital, Annapolis, 16th July, 1863; specimen removed, 10th March; furloughed, 14th March, 1864.
Contributed by Assistant Surgeon W. S. Ely, U. S. Vols.

3833. A slender sequestrum, two inches in length, from the stump of the tibia after gangrene.
g. 14. Private P. S., "E," 6th Wisconsin: South Mountain, 14th September; amputated in the middle of leg, 30th September, 1862; specimen removed in the winter of 1862–'3.
Contributed, with obscure history, by Assistant Surgeon R. F. Weir, U. S. Army.

3697. A sequestrum, three inches long, in four longitudinal pieces, from the stump of the tibia.
g. 15. Private S. B. T., "I," 29th Wisconsin: removed by Acting Assistant Surgeon T. Henderson, Madison, Wis., 26th December, 1864.
Contributed by Surgeon H. Culbertson, U. S. Vols.

3072. A circular sequestrum, from the stump of the tibia, with a process of three inches, corresponding to the crest,
g. 16. removed two months after amputation.
Private L. A. S., "G," 9th New Hampshire, 28: tibia and fibula fractured and amputation performed in the middle third, Hanover C. H., Va., 31st May; admitted hospital, Washington, 4th June; specimen removed by Surgeon N. R. Mosely, U. S. Vols., 8th August, 1864; transferred to New Hampshire, 25th February, 1865.
Contributed by Acting Assistant Surgeon J. E. Jandrin.

2251. Two spiculæ of necrosed bone, three and four and a half inches in length, from the stumps of the fibula and tibia,
g. 17. respectively, in the lowest thirds.
Private A. G., "D," 93d New York, 19: tibia fractured, Wilderness, 5th May; admitted hospital, Washington, 15th May; amputated in the lowest third of the leg, 26th June; specimen removed by Surgeon N. R. Mosely, U. S. Vols., 25th August, 1864; out of service, 30th November, 1865.
Contributed by Acting Assistant Surgeon J. M. Downs.

3853. Four sequestra, of various sizes, the largest three inches in length.
g. 18. Private J. S., "B," 28th Ohio: specimens removed after periosteal inflammation had occurred from contusion by gunshot.
Contributed by Acting Assistant Surgeon G. M. Paullin.
See class **XV.** A. B. a.

398. Three large and eight small fragments, necrosed and removed from the fractured shaft of the right tibia.
g. 19. Private J. M., "G," 81st Pennsylvania, 20: wounded, 1st July; admitted hospital, Baltimore, from Richmond, 25th July; specimen removed, 21st August, 1862.
Contributed by Surgeon L. Quick, U. S. Vols.

989. A slender exfoliation, four inches in length, from the left tibia.
g. 20. Sergeant J. W., "D," 2d Delaware, 36: admitted hospital, Washington, with a gunshot wound wherein the bullet split on the tibia. Specimen came away in the course of recovery.
Contributed by Acting Assistant Surgeon W. A. Harvey.
See class **XV.** A. B. a.

1003. The head of the fibula and four inches of sequestrum.
g. 21. Contributed, without history, by Acting Assistant Surgeon G. F. Shrady.

3284. A tubular sequestrum, four inches in length, from the stump of the left tibia.
g. 22. Private O. A. A., "B," 120th New York, 33: tibia fractured, Cold Harbor, 3d June; leg amputated in the field; admitted hospital, Washington, 12th June; specimen removed by Surgeon D. W. Bliss, U. S. Vols., 11th October, 1864. Recovered.
Contributed by the operator.

3259. A slender sequestrum, four inches in length, removed from the right tibia four months after amputation.
g. 23. Private J. L., "M," 2d New York Heavy Artillery, 26: tibia fractured by a conoidal ball, Cold Harbor, 1st June; amputated in the lowest third, 10th June; specimen removed, Washington, 11th October, 1864. Recovered.
Contributed by Surgeon D. W. Bliss, U. S. Vols.

1655. A heavy fragment of the left tibia, four inches in length, separated one month after injury. About half the surface
g. 24. is covered with a thin osseous deposit, and the remainder has been dead from the time of the fracture.
Private I. D. L., "C," 1st Potomac Home Brigade: tibia fractured, Gettysburg, 3d July; specimen removed, Baltimore, 31st July, 1863.
Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

3852. Two sequestra, four and six inches in length.
g. 25. Received, without history, from Frederick.

668. A slender sequestrum, four and a half inches in length, from the right fibula.
g. 26. Private W. N., "A," 71st Pennsylvania: ankle fractured and leg amputated in the middle third, White Oak Swamp, Va., 30th June; admitted hospital, Philadelphia, (from Richmond,) 30th July; specimen removed, 13th November, 1862; reamputated at knee joint for hyperostosis, 27th August, 1863. Recovered.
Contributed by Surgeon J. Neill, U. S. Vols.
See 2778, **XV.** A. B. f. 36; 2458, **XXV.** A. B. b. 162.
See class **XIV.** A. B. e.

3278. A slender sequestrum, six inches in length, from the right tibia.
g. 27. Private J. N., "F," 14th New York State Militia, 31: Spottsylvania, 18th May; admitted hospital, with leg amputated, Washington, 26th May; specimen removed by Acting Assistant Surgeon H. E. Woodbury, 5th October, 1864; transferred to New York, 11th January, 1865.
Contributed by Surgeon D. W. Bliss, U. S. Vols.

2620. A broad exfoliation, five inches in length, removed from the right tibia three months after injury by a round ball
g. 28. and two months after an attack of hospital gangrene.
Corporal G. D., "D," 82d Ohio, 21: Gettysburg, 1st July; admitted hospital, Philadelphia, 9th; gangrene appeared, 23d July, and lasted two weeks; specimen removed, 20th September, 1863.
Contributed by Acting Assistant Surgeon M. Lampen.
See class **XXIII.** A. B.

4250. A slender sequestrum, six inches in length, from a partial fracture of the tibia by a conoidal ball.
g. 29. Private R. F., "H," 155th New York: Cold Harbor, 3d June, 1864; specimen removed six weeks afterward.
Contributed by Dr. Benedict.
See class **XV.** A. B. a.

1040. A slender sequestrum, six inches in length, from the stump of the right tibia.
g. 30. Private F. H., "H," 97th New York, 40: tibia fractured by shell, Antietam, 17th September; cicatrix formed, Smoketown, 6th December; crest of tibia protruded, 19th December, 1862; specimen removed, 6th February, 1863. Healed.
Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

4193. A questrum, six inches in length, removed from the right tibia, four and a half months after gunshot.
g. 31. Sergeant J. M., "H," 52d New York, 43: Spottsylvania C. H., 12th May; specimen removed by Acting Assistant Surgeon D. W. Cadwalader, 1st October; discharged, healed, 28th October, 1864.
Contributed by the operator.

3283. A sequestrum, of six inches extreme length, and for four inches tubular, from the left tibia, five months after injury.
g. 32. Private J. W., "A," 7th Wisconsin, 27: a conoidal ball lodged in the middle third of the tibia, Wilderness, 6th May; admitted hospital, Washington, 12th August; missile removed, 13th August; specimen removed by Surgeon D. W. Bliss, 10th October, 1864; discharged, 24th January, 1865.
Contributed by the operator.

2099. A semi-tubular sequestrum, five inches in length, from the tibia.
g. 33. Private G. C., "D," 83d Ohio: admitted hospital, with leg amputated in the middle third, Memphis, 14th June; specimen removed, 25th August; transferred, convalescent, to St. Louis, 20th September, 1863.
Contributed by Surgeon W. Watson, U. S. Vols.

420. A slender sequestrum, nearly eight inches in length, following a contusion of the left tibia and removed nine and
g. 34. a half months afterward.
Private W. H., "C," 142d New York, 25: Chapin's Farm, Va., 29th September, 1864; specimen removed, Albany, N. Y., 15th July; mustered out of service, healed, 21st July, 1865.
Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.
See class **XV.** A. B. a.

4354. A sequestrum, eight inches in length, now in five fragments, from the right tibia.
g. 35. Private E. S., "D," 10th U. S. Infantry, 24: Petersburg, 1st October, 1864; specimen removed by Assistant Surgeon P. S. Conner, U. S. Army, Fort Columbus, N. Y., 11th May; discharged the service, convalescent, 12th July, 1865.
Contributed by the operator.

3601. A very large sequestrum, eight inches in length, in two pieces, from the tibia, after gangrene following gunshot
g. 36. fracture.
Private H. R., "B," 104th New York: Petersburg, 22d June; specimen removed, Washington, 29th October, 1864; transferred, convalescent, to Elmira, N. Y., 4th January, 1865.
Contributed by Surgeon R. B. Bontecou, U. S. Vols.
See class **XXIII.** A. B.

4337. A sequestrum, nine inches in length, with eleven smaller pieces of necrosed bone, from the tibia.
g. 37. Private H. R., "D," 4th New York Heavy Artillery, 22: tibia bruised, Old Church, Va., 30th May; admitted hospital, Washington, 4th June, 1864; specimen removed by Surgeon B. B. Wilson, U. S. Vols., 14th March; discharged the service, 6th June, 1865; although not perfectly healed, his limb enabled him to walk steadily and with ease, August, 1865.
Contributed by the operator.
See 4628, **XXVI.** A. 2, 82.
See class **XV.** A. B. a.

1489. A heavy sequestrum, nine and a half inches in length, in two pieces, with eleven other fragments, from the tibia,
g. 38. eight months after fracture.
Second Lieutenant C. M., "C," 2d New York Heavy Artillery, 39: a conoidal ball fractured the tibia and fibula in the middle third, Deep Bottom, Va., 14th August; admitted hospital, Washington, 17th August, 1864; specimen removed by Assistant Surgeon C. H. Leale, U. S. Vols., 25th April; extremely ill, with pyæmic symptoms, until 6th May; convalescent, able to walk and with a fair prospect of a useful limb, 15th July, 1865.
Contributed by the operator.

1406. A slender sequestrum, three and a half inches in length, removed from the right fibula after amputation.
g. 39. Private M. J. L., "E," 3d New York Heavy Artillery: wounded and amputated, 22d October, 1864.
Contributed by Acting Assistant Surgeon S. Teats.

B. Injuries not caused by Gunshot.

A. Primary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Excisions.
- d. Amputated fractures.
- e. Other operations.

b. Complete Fractures.

See 493, **XVI.** A. B. b. 7.

d. Amputated Fractures.

20. d. 1. Portions of the left tibia and fibula, fractured, with comminution, in the lowest third and amputated in the upper third. The case of an intoxicated Marine, run over by the cars; amputated, within four hours, at the Washington Infirmary, and died three hours afterward.

Contributed by Medical Cadet E. K. Hutchins.

348. d. 2. Extensively fractured tibia and fibula of both legs of a child. Probably run over by a vehicle and amputated.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

1846. d. 3. The two lower thirds of the bones of the right leg and the lowest thirds of the bones of the left leg, apparently amputated at these points. The most of the feet bones are also attached. Both legs have suffered a comminuted fracture of both bones in the middle of the specimens as mounted, and the left metatarsus is also crushed.

The case is that of a boy ten years old, the victim of a railroad accident, and was contributed by Acting Assistant Surgeon T. Hunt Stillwell.

3288. d. 4. The bones of the right foot and leg and the two lower thirds of the femur. The tibia and fibula were fractured in the lowest third by the subject falling in the street while intoxicated. An oblique fracture of the tibia extends into the ankle, and the fibula is transversely fractured at the junction of the upper thirds. A civil practitioner cut off the extremities of the fractured bone, and the next day amputated the femur in the upper third for no assignable cause. Death followed.

Contributed, as a surgical curiosity, by Acting Assistant Surgeon F. Schafhirt.

See 2263, **IX.** A. A. e. 1., from the same operator.

B. Secondary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Excisions.
- d. Amputated fractures.
- e. Other operations.
- f. Stumps.
- g. Sequestra.

a. Contusions and Partial Fractures.

See 2403, **XV.** B. B. d. 3.

b. Complete Fractures.

1057. b. 1. A portion of the shaft of the tibia, firmly consolidated, after simple oblique fracture. Death occurred from an independent cause.

Contributed by Assistant Surgeon E. Coues, U. S. Army.

3932. A section of the right tibia, showing an old consolidated fracture, apparently not caused by gunshot, followed by
b. 2. a spongy and carious condition of the anterior portion of the bone.

Sergeant Major I. L. H., 18th Pennsylvania Cavalry: admitted hospital, with indolent ulcer over the right tibia, Frederick, 13th July; died, after mania a potu, 26th October, 1864.

Contributed by Acting Assistant Surgeon W. S. Adams.

c. Excisions.

346. One and one-fourth inches of the shaft of the tibia, excised, for want of union, one month after fracture from the
c. 1. kick of a horse. Firm union occurred three months after the operation. The excised fibula has not been preserved.

Private C. P., "A," 10th Massachusetts.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

d. Amputated Fractures.

1744. The right tibia and fibula, transversely fractured, with some comminution, in the middle third, by a horse falling
d. 1. upon the subject. There is no attempt at union.

First Sergeant H. M. L., "D," 12th Illinois Cavalry: injured, 10th October; amputated by Acting Assistant Surgeon W. H. Ensign, in the upper third, 26th October; secondary hæmorrhage checked by Mott's tourniquet, 26th November, 1863; discharged the service, 30th July, 1864.

Contributed by the operator.

See 1879, **XXII.** A. B. c. 1.

2077. Portions of the right tibia and fibula, fractured in a railroad accident. The left leg was fractured with
d. 2. comminution at the same time. Both bones are transversely fractured, the tibia being somewhat comminuted.

Captain J. W. S., "F," 1st Michigan Engineers: train thrown from track by guerillas, 23d October; right leg amputated, 3d November; died, Tullahoma, Tenn., 15th November, 1863.

Contributed by Surgeon B. Woodward, 22d Illinois.

2403. The two lower thirds of the left tibia and fibula, ten months after injury. The leg was contused by a wagon
d. 3. passing over it, and extensive necrosis of the tibia followed sloughing of the soft parts. In the specimen the tibia is occupied in its greatest part by an involucrum of new bone, through the cloacæ of which an extensive sequestrum may be detected.

Private J. L., "B," 1st New Jersey Artillery, 45: injured, Wilderness, 26th May; admitted hospital, Chester, Penna., 20th June, 1864; amputated at the junction of the upper thirds by Acting Assistant Surgeon R. B. Watson, 15th March, 1865.

Contributed by Brevet Lieutenant Colonel T. H. Bache, U. S. Vols.

See class **XV.** B. B. a.

21. The bones of the left leg, nine weeks after injury. The specimen shows both bones fractured in the middle third.
d. 4. A fragment of the fibula has attached itself to the lower portion. Callus has apparently been thrown out and absorbed, leaving the bones ununited.

An ambulance driver, kicked by a horse: the limb was kept in a fracture-box until erysipelas and an abscess in the knee required amputation in the thigh. Recovered.

Contributed by Medical Cadet E. K. Hutchins.

See class **XXIII.** A. A.

For other illustrations, see 2793, **XV.** A. B. d 7.

f. Stumps.

4242. The stump of the right tibia and fibula, after amputation in the upper third. The specimen in its dried state
f. 1. shows no pathological change.

Private F. Y., "E," 93d Pennsylvania, 34: both bones fractured by the kick of a mule, 10th May; admitted hospital, Washington, 23d May; attacked with gangrene, 5th June; amputated by Acting Assistant Surgeon G. K. Smith, 13th; died from pyæmia, 27th June, 1865.

Contributed by Medical Cadet J. S. Montgomery.

See class **XXI.** A. B.

2798. Four inches of the extremities of the left tibia and fibula, four months after amputation. The ends are somewhat
f. 2. rounded, but the tibia is enlarged and diseased by the deposit of callus on its outer surface, which is carious.

Private G. M., "C," 12th Veteran Reserve Corps, 49: railroad accident, 10th May; amputated junction of lower thirds, 15th May; reamputated, Albany, 26th September, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

g. SEQUESTRA.

1915. An immense sequestrum, nearly twelve inches in length, from the right tibia, after no wound.
g. 1. Private W. F., "E," 85th Illinois, 29: admitted hospital, convalescent from pneumonia, Nashville, 22d February. A small vesicle on the right leg soon sloughed into an ulcer, which then took on hospital gangrene, but which was arrested, 3d March; small exfoliations were thrown off from time to time, and the specimen was removed, without the aid of instruments, 27th July; subject improved until 20th August; died from pyæmia, 23d September, 1863.
Contributed by Surgeon C. W. Horner, U. S. Vols.
See 4627, **XXVI.** A. 1, 40.
See class **XXIII.** A. B.
For other illustrations, see 4711, **XXIII.** B. D. 6.

C. Diseases.

409. An exostosis, three-fourths of an inch in length, removed from below the inner tuberosity of the right tibia
C. 1. beneath the insertion of the semitendinosus and gracilis.
Private J. L. P., "B," 104th New York.
Removed and contributed by Surgeon S. D. Freeman, U. S. Vols.

1779. The upper portions of the bones of the left leg, exhibiting an exostosis downward on the inner border of the
C. 2. tibia, near its head, nearly two inches in length.
Private W. H., "D," 184th Pennsylvania, 28: wounded in the right thigh and left knee, Cold Harbor, 3d June; died, Alexandria, 14th June, 1864.
Contributed by Acting Assistant Surgeon Peter Wilson
See 2561, **XIV.** A. B. b. 17; 2562, **XVIII. II.** A. B. a. 15.

1921. The shafts of the bones of the left leg, after amputation for dry gangrene. The disease occurred from no
C. 3. assignable cause. The specimen shows a line of demarcation in each bone near the junction of the upper thirds.
Corporal C. O'K., "F," 42d Indiana, 21: admitted hospital, Nashville, 26th August; amputated below the tubercle of the tibia, 9th September, 1863. Recovered.
Contributed by Acting Assistant Surgeon H. M. Lilly.
See class **XXIII.** B. C.

3387. A section of the right tibia, carious on the anterior surface and thickened by new bone deposit near by.
C. 4. The subject died with what was supposed typhomalarial fever. Post mortem examination showed metastatic foci in both lungs, being an identical state with pyæmia following gunshot. The other viscera were healthy. A large periosteal abscess was found on the tibia, which exhibited the pathological appearance of an old node.
This specimen very closely resembles gunshot contusion, illustrations of which see.
Contributed by Surgeon E. Bentley, U. S. Vols.

2046. A part of the condyles of the femur and the two upper thirds of the bones of the left leg, after successful amputation
C. 5. for disease of the tibia (probably scrofulous in its nature). The tibia is carious in its upper third, below which it is thickened, as if by inflammatory action. The case of a little girl eight or ten years of age.
Contributed by Dr. Hellen, of Washington.

584. The left tibia, with the lowest third sawn open, exposing a large medullary abscess. The bone at the place of
C. 6. disease is hypertrophied, and above the limits of the caries is abnormally compact.
J. C., mulatto, 21: admitted Freedman's Hospital, Washington, 15th January, with typhoid pneumonia; died, 6th February, 1866.
Contributed by Dr. S. S. Bond.

3095. The right tibia, immensely enlarged in the upper third, with abscesses, as seen by a section, into the medullary
C. 7. canal. The new tissue is spongy and contains sinuses.

H. J., colored, (?) 54: admitted hospital, Alexandria, 28th September; died, 19th October, 1865.

Contributed by Surgeon E. Bentley, U. S. Vols.

A drawing of this specimen, when recent, is on file.

2009. The lower halves of the bones of the right leg. The tibia is hypertrophied and in its lowest third presents several
C. 8. abscesses, as though of a syphilitic character. The fibula is partly absorbed and has a moderate periosteal deposit near the seat of disease.

Private W. R., "F," 6th New York: admitted hospital, Alexandria, 5th August, 1863; died with gangrenous inflammation of the head, 3d January, 1864.

Contributed by Acting Assistant Surgeon W. G. Elliott.

2779. A wet preparation of the shaft of the right tibia, exhibiting a large carcinomatous tumor over the upper third of
C. 9. the bone, for which amputation in the lowest third of the thigh was performed.

Private C. W. B., "I," 95th New York, 23: bruised by a fall, Acquia Creek, 20th June, 1862; "a swelling" commenced in about ten days; admitted hospital, Washington, 25th March; Philadelphia, 3d May; a tumor the size of a goose egg, removed by Assistant Surgeon C. R. Greenleaf, U. S. Army, 24th July; operation repeated, 20th August; amputated in the lowest third of thigh, 17th October, 1863.

Contributed by Acting Assistant Surgeon J. H. Jamar.

3310. The right tibia, enlarged and carious, with scrofulous disease of four years standing, from a young subject. There
C. 10. are fourteen sinuses extending into the bone, where a sequestrum of nearly seven inches is loose.

J. W. S., 14: amputated in the lowest third of the thigh by Surgeon H. Wardner, U. S. Vols., 5th October, 1864. Recovered.

Contributed by the operator.

See 4628, **XXVI.** A. 2, 52.

887. The lower portions of the bones of the right leg, with the tibia shattered into the joint, and probably primarily
C. 11. amputated. The specimen is chiefly remarkable for an articulation formed by the adjoining surfaces of the exostoses about one inch above the ankle.

Contributor and history unknown.

See class **XVI.** A. A. e.

3096. A section of the tibia, from the junction of the upper thirds, six months after the removal of carious bone, for
C. 12. scrofulous disease, by the gouge and saw. The opening was two and a half inches in length and extended to the medullary cavity. The volume of the bone is doubled and the artificial opening is nearly closed by new formation. An oblique section shows the walls very much hypertrophied and, opposite the seat of disease, loose in texture. Nearer the sound bone the tissue is very compact. The interior was highly colored when recent, and presents numerous small abscess-like cavities.

R. R., colored girl, 12: died of tuberculosis, six months after the operation.

Contributed by Brevet Lieutenant Colonel Robert Reyburn, Surgeon, U. S. Vols.

For other illustrations, see 3414, **XIV.** A. B. f. 129; 3062, **XIV.** A. B. f. 198; 3164, **XV.** A. B. b. 4; 2342, **XV.** A. B. b. 37.

XVI. INJURIES AND DISEASES OF THE TARSAL ARTICULATIONS.

- **A.** Gunshot Injuries.
  - **A.** Primary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Excisions.
    - d. Amputations in the tarsus.
    - e. Amputations in the leg or thigh.
    - f. Other operations.
  - **B.** Secondary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Caries consecutive upon other injury than fracture of the bones of the joint.
    - d. Excisions.
    - e. Amputations in the tarsus.
    - f. Amputations in the leg or thigh.
    - g. Other operations.
    - h. Stumps.
    - i. Sequestra.
- **B.** Injuries not caused by Gunshot.
  - **A.** Primary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Dislocations.
    - d. Excisions.
    - e. Amputations in the tarsus.
    - f. Amputations in the leg or thigh.
    - g. Other operations.
  - **B.** Secondary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Dislocations.
    - d. Caries consecutive upon other injury than fracture of the bones of the joint.
    - e. Excisions.
    - f. Amputations in the tarsus.
    - g. Amputations.
    - h. Other operations
    - i. Stumps.
    - k. Sequestra.
- **C.** Diseases and Deformities.
- **D.** List of Cases illustrating Special Amputations in the Tarsus.

XVI. TARSAL ARTICULATIONS.

A. Gunshot Injuries.

A. Primary conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Excisions.
- d. Amputations in the tarsus.
- e. Amputations in the leg or thigh.
- f. Other operations.

a. Contusions and Partial Fractures.

See 4578, **XVI.** A. a. e. 25.

b. Complete Fractures.

210. b. **1.** A ligamentous preparation of the right lower extremity, with the outer malleolus shattered.
Contributed by Surgeon H. S. Hewit, U. S. Vols.

954. b. **2.** The lower halves of the bones of the left leg and parts of the astragalus and calcaneum. The bullet appears to have entered the inner side of the tibia from above, to have split off the lowest and anterior fifth and, fracturing the astragalus, to have passed perpendicularly through the tarsus.
Contributed by Assistant Surgeon E. de W. Breneman, U. S. Army.

1469. b. **3.** A ligamentous preparation of a portion of the left foot, with the external malleolus fractured. A second shot has passed perpendicularly through the base of the third metatarsal bone. The specimen is interesting from illustrating two wounds received at the same time in adjoining regions, and especially from the unusual direction of the second injury.
Contributed, without history, by Surgeon J. H. Brinton, U. S. Vols.

d. Amputations in the Tarsus.

1121. d. **1.** The metatarsus and phalanges of the left foot. The first, third, fourth, and fifth metatarsal bones are fractured by a conoidal ball, the fracture extending into the tarsal articulations of the first and fourth bones.
Private W. J., "C," 24th Michigan: wounded, 29th April; Lisfranc's metatarso-tarsal disarticulation by Surgeon E. Shippen, U. S. Vols., 1st May; died, 25th May, 1863.
Contributed by the operator.
See **XVI.** D.

4543. d. **2.** The left astragalus and lower borders of the tibia and fibula, apparently representing a modification of Syme's amputation. The astragalus is transversely fractured.
Contributor and history unknown.
See **XVI.** D.

828. d. **3.** The left metatarsus and the scaphoid, cuboid and two outer cuneiform bones of the tarsus. A large, battered conoidal bullet occupies the place of the inner cuneiform. The bones adjacent to it are fractured. This subject underwent in hospital an excision in the shaft of the right humerus.
Private H. E. B., "K," 1st Massachusetts Artillery: Spottsylvania, 19th May; amputated, after Syme's method, on the field, by Surgeon J. W. Wishart, 140th Pennsylvania; admitted hospital, Washington, 22d May; died, 22d June, 1864.
Contributed by the operator.
See 2322, **VI.** A. B. c. 2.
See classes **XVI.** D.; **XXVII.** B. B. d.

e. AMPUTATIONS IN THE LEG OR THIGH.

4113. The right calcaneum and astragalus, fractured at their posterior articulation.
e. 1. Private A. T., "F," 99th Pennsylvania: amputated by Surgeon D. S. Hayes, 110th Pennsylvania, 16th September, 1864.
Contributed by the operator.

2419. The bones of the right tarsus and metatarsus, amputated in the leg for fracture of the astragalus.
e. 2. Private J. G., "I," 2d New York Artillery.
Contributed by Assistant Surgeon G. F. Winslow, U. S. Navy.

537. A ligamentous preparation of a portion of the left foot and the extremities of the tibia and fibula. The plantar
e. 3. surface of the tarsus was shattered by a shell.
——— ———: Fredericksburg, 13th December, 1862; amputated just above the malleoli, in the field, by William A. Hammond, M. D.
Contributed by the operator.

2244. A ligamentous preparation of the left tarsus, with the astragalus shattered by a ball passing through it postero-
e. 4. anteriorly.
Private J. H. T., "C," 5th New York Cavalry: wounded and amputated primarily in the lowest third by Assistant Surgeon O. W. Armstrong, 5th New York Cavalry, 28th April, 1864.
Contributed by the operator.

4140. The bones of the left ankle, fractured on the inner side of the tibia and astragalus.
e. 5. Private W. P., "B," 60th Ohio, 22: Petersburg, 1st April; amputated in the lowest third of the leg by Assistant Surgeon W. Carroll, U. S. Vols., 3d April, 1865. Recovered.
Contributed by the operator.

1764. A portion of the left foot, with the calcaneum and inferior border of the astragalus comminuted by a conoidal
e. 6. ball perforating obliquely from behind.
Private J. D. B., "I," 109th New York, 19: accidentally wounded and admitted hospital Washington, 3d November; amputated lowest third by Surgeon D. W. Bliss, U. S. Vols., 6th November, 1863. Recovered.
Contributed by the operator.

1629. A ligamentous preparation of the bones of the left ankle, with the inner malleolus and scaphoid bone fractured
e. 7. by a conoidal ball.
Private J. B., "B," 54th Indiana, 35: Transport "J. C. Swan," 31st May; amputated in the lowest third by Acting Assistant Surgeon M. B. Graff, 3d June, 1863.
Contributed by Assistant Surgeon H. M. Sprague, U. S. Army.

2841. The lower extremities of the bones of the left leg. The fibula is partially fractured and the tibia shattered, with
e. 8. a fissure into the joint.
Private W. B., "D," 7th Maine, 21: near Washington, 12th July; amputated in the lowest third by Acting Assistant Surgeon T. Carroll, 15th July, 1864.
Contributed by Assistant Surgeon C. A. McCall, U. S. Army.

1769. A ligamentous preparation of the left ankle, perforated with comminution through all the bones.
e. 9. Private G. H. O., "F," 6th Maine, 18: Rappahannock Station, 7th November; admitted hospital, Washington, 9th; amputated in the lowest third by Surgeon D. W. Bliss, U. S. Vols., 11th November, 1863.
Contributed by the operator.

314. The bones of the right ankle, shattered by a ball passing transversely from within outward.
e. 10. Private G. E., "E," 11th Ohio: Fairfax Station, Va., 28th August; amputated in the lowest third by Surgeon J. E. Summers, U. S. Army, Alexandria, 29th August, 1862. Recovered.
Contributed by the operator.

4022. The bones of the left ankle, with the astragalus and calcaneum badly shattered and the lower extremities of the
e. 11. tibia and fibula comminuted, as though by a missile of considerable size. Amputation has been performed in the lowest third.
Contributor and history unknown.

470. The bones of the left ankle, shattered by a conoidal ball passing from the internal malleolus obliquely downward
e. 12. and outward, at the closest range, from the accidental discharge of the piece.

Private D. C. S., "B," 23d Iowa, 25: amputated at the junction of the lower thirds of the leg, St. Louis, 23d October; died from pyæmia and erysipelas, 10th November, 1862.

Contributed by Surgeon J. H. Hodgen, U. S. Vols.

See class **XXIII.** A. A.

1219. The lower portions of the bones of the right leg, fractured by shell. The external malleolus is broken off, and
e. 13. the tibia is shattered and obliquely fractured.

Wounded at Beverly Ford, Va., 9th June, 1863: amputated in the middle third, and contributed by Surgeon-in-Chief First Cavalry Division, Army of the Potomac.

2284. The lower portions of the bones of the left leg. The extremity of the fibula has been carried away and the
e. 14. adjacent portion of the tibia has been broken. Another fracture, where the bone has been chipped, exists, five and a half inches above the joint, from which longitudinal fractures extend into the articulation.

Private J. S., "C," 119th Pennsylvania: Spottsylvania C. H., 10th May; amputated, 14th May, 1864. Recovered.

Contributed by Surgeon O. A. Judson, U. S. Vols.

3312. The lower halves of the bones of the left leg. Both leg bones are shattered at the ankle, and the astragalus is
e. 15. fractured by musket ball.

Private W. J., "D," 7th U. S. Colored Artillery: Fort Pillow, Tenn., 12th April; amputated by Surgeon H. Wardner, U. S. Vols., 15th; died 23d April, 1864.

Contributed by the operator.

See 3311, **V.** B. B. b. 1.

1627. The bones of the right ankle joint, shattered by a transversely perforating musket ball. The astragalus is very
e. 16. much torn up.

Second Lieutenant F. D., "C," 12th Missouri: Vicksburg, 22d May; amputated in the middle third by Assistant Surgeon H. M. Sprague, U. S. Army, 26th May, 1863.

Contributed by the operator.

1628. The lower halves of the bones of the right leg, and the tarsus. A bullet has entered the ankle joint from the
e. 17. rear, badly fracturing the posterior portions of the tibia and fibula, destroying the astragalus and tearing up the inferior surface of the tarsus as it proceeded longitudinally, at the same time dislocating the tarsus outward.

Private R. W., "K," 81st Illinois: Vicksburg, 22d May; amputated in the middle third of the leg by Assistant Surgeon H. M. Sprague, U. S. Army, 26th May, 1863.

Contributed by the operator.

1163. The lower halves of the bones of the left leg, with the tarsus and metatarsus. The tibia is obliquely fractured in
e. 18. its lower portion, with the inner malleolus shattered and the fibula transversely fractured three inches above the articulation. The case is interesting as one of several who were injured at the same time and in the same way. They were standing on the deck of a gunboat which was lifted up by an explosion and, as the contributor remarks, the injuries closely resemble those that would be received by falling on the feet from a considerable height.

Private A. A. S., "A," 3d Rhode Island Artillery: explosion of magazine of Steamer "George Washington," near Beaufort, S. C., 10th April; amputated, 11th April, 1863.

Contributed by Surgeon F. L. Dibble, 6th Connecticut.

See 1165, **XVI.** A. A. e. 19.

1165. A ligamentous preparation of the bones of the right lower extremity, with the ankle joint and tarsal bones
e. 19. shattered and a fracture of the fibula in the lowest third. With this injury the subject received two slight scalp wounds, a compound fracture of the right ulna and a fracture of the right femur in its middle third, all from the explosion of the magazine of the gunboat "George Washington."

Private E. J. V., "A," 3d Rhode Island Artillery, 18: near Beaufort, S. C., 9th April; leg amputated in the middle third, 11th; died, 14th April, 1863.

Contributed by Surgeon F. L. Dibble, 6th Connecticut.

See 1163, **XVI.** A. A. e. 18.

4474. The calcaneum, part of the astragalus and lower portions of the left tibia and fibula. The astragalus is split
e. 20. longitudinally and the outer half is wanting. The outer malleolus is fractured.

Private S. W., "C," 3d Maine: Cold Harbor, 5th June, 1864; amputated on the field by Surgeon F. F. Burmeister, 69th Pennsylvania; discharged the service, 6th March, 1865.

Contributed by the operator.

4494. The astragalus and lower halves of the bones of the left leg. The tibia is shattered into the ankle, and the fibula
e. 21. is transversely fractured, as if consecutively.

Second Lieutenant E. O'B., "H," 28th Massachusetts: Cold Harber, 5th June; amputated on the field in the middle third by Surgeon Peter Emmet Hubon, 28th Massachusetts; admitted hospital, Washington, 8th June; leave of absence, 11th July, 1864.

Contributed by the operator.

2969. The lower halves of the bones of the right leg, primarily amputated for shattering of the tibia, involving the
e. 22. ankle and a transverse fracture of the fibula two inches above the articulation.

Private J. W., "B," 5th Pennsylvania Reserves, 24: Spottsylvania, 8th May, 1864; amputated by Dr. Rohr the same day; discharged the service, Philadelphia, 8th June, 1865.

Contributed by the operator.

2934. The greater part of the tarsal bones, with the astragalus and calcis fractured by shell. The knee was also injured,
e. 23. and primary amputation was performed in the thigh.

Private T. K., "G," 183d Pennsylvania, 35: wounded and amputated by Surgeon Peter Emmet Hubon, 28th Massachusetts, Cold Harbor, 3d June, 1864. Discharged.

Contributed by the operator.

4498. The bones of the left ankle, with the posterior half of the calcaneum and the border of the astragalus carried away
e. 24. by grape shot.

Captain W. F. M., "I," 1st Massachusetts Heavy Artillery, 47: Spottsylvania, 19th May; admitted hospital, with leg amputated in the lowest third, 22d May; on leave, 6th July, 1864.

Contributed by Surgeon J. W. Lyman, 57th Pennsylvania.

4578. The astragalus and lowest fourths of the bones of the left leg, with a spherical leaden ball lodged just at the
e. 25. anterior border of the articulation.

Private P. R., "K," 5th New Jersey, 19: Petersburg, 17th June; amputated by Surgeon Wm. Watson, 105th Pennsylvania, 20th June; died from exhaustion, 30th July, 1864.

Contributed by the operator.

See classes **XVI.** A. a. a.; **XXVII.** B. b. d.

257. The two lower thirds of the bones of the left leg, after shattering of the fibula and partial fracture of the tibia.
e. 26. Private P. B., "E," 164th New York, 38: Petersburg, 16th June, 1864; amputated below the knee on the field; discharged the service, summer of 1865.

Operator and contributor unknown.

502. The bones of the left ankle, showing fractures of the inner borders of the calcaneum and astragalus. Primary
e. 27. amputation was performed at the junction of the upper thirds, but of the leg bones only the lower portions have been preserved.

Private J. A. H., "D," 8th New York Heavy Artillery, 28: Petersburg, 18th June; amputated by Assistant Surgeon G. F. Winslow, U. S. Navy, 19th; admitted hospital, Washington, 28th June, 1864; discharged the service, 21st June, 1865.

Contributed by the operator.

For other illustrations, see 3796, **III.** A. b. b. 24; 1188, **V.** A. b. b. 30; 3837, **XIII.** A. b. f. 64; 3100, **XIII.** A. b. g. 70; 2778, **XV.** A. b. f. 36.

B. Secondary Conditions.

- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Caries consecutive upon other injury than fracture of the bones of the joint.
- d. Excisions.
- e. Amputations in the tarsus.
- f. Amputations in the leg or thigh.
- g. Other operations.
- h. Stumps.
- i. Sequestra.

a. Contusions and Partial Fractures.

2827. a. 1. The right tarsus and metatarsus, scarcely injured. This specimen is interesting from a battered conoidal ball having been found resting against the plantar surface of the middle and external cuneiform bones. The missile apparently entered from the rear and grazed the astragalus and calcis on their internal borders.

There is no satisfactory history.

See class **XXVII.** B. B. d.

For other illustrations, see 1345, **XVI.** A. B. f. 140.; 3204, **XVI.** A. B. f. 180.

b. Complete Fractures.

3338. b. 1. The bones of the right ankle, three weeks after injury. The external malleolus was fractured by gunshot. Hospital gangrene extended through the joint, and profuse suppuration involved the foot and leg.

Sergeant H. S. E., "C," 6th Ohio Cavalry: St. Mary's Church, Va., 24th June; died, Alexandria, 15th July, 1864.

Contributed by Surgeon E. Bentley, U. S. Vols.

See class **XXIII.** A. B.

4147. b. 2. The bones of the left ankle, six weeks after injury. The astragalus is fractured and the joint is carious. The condition of the patient at no time after admission to hospital justified amputation.

Private J. Y., "E," 7th Maryland, 45: probably Petersburg, 25th March or 1st April; admitted hospital, Washington, 6th April; died, exhausted, 5th May, 1865.

Contributed by Brevet Captain W. F. Norris, Assistant Surgeon, U. S. Army.

1682. b. 3. The bones of the right ankle, nineteen days after injury. The internal malleolus is slightly fractured. The articular surfaces are eroded by suppuration.

Private W. L., "M," 5th U. S. Cavalry, 25: Brandy Station, Va., 1st August; admitted hospital, Washington, 2d; attempted to save the limb; died from pyæmia, 19th August, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

1203. b. 4. The left calcaneum, perforated in its posterior portion by a conoidal ball obliquely from without and from the front.

Corporal E. D., "K," 6th Pennsylvania: Fredericksburg, 13th December; admitted hospital, Alexandria, 19th December, 1862; died of double pleuro-pneumonia, 3d January, 1863.

Contributed by Surgeon Charles Page, U. S. Army.

3351. b. 5. Part of the left foot, three weeks after injury. The third and fourth metatarsal bones were fractured by a conoidal ball, involving their bases, and are carious.

Private T. B. T., "I," 24th Michigan: 18th June; admitted hospital, Alexandria, 4th July; died of pleuro-pneumonia, with gangrene, 11th July, 1864.

Contributed by Surgeon E. Bentley, U. S. Vols.

See class **XXIII.** A. B.

3755. b. 6. The left calcaneum, with fractured astragalus, scaphoid and cuboid, nineteen days after injury. An unsuccessful attempt was made to save the limb.

Private G. A., "K," 9th Minnesota, 39: Nashville, 15th December, 1864; died, exhausted, 3d January, 1865.

Contributed by Acting Assistant Surgeon H. C. May.

493. The bones of the left leg, with the internal malleolus split off. The fibula is fractured transversely, with slight
b. 7. comminution, three and five inches above the ankle, and again, with the loss of an inch and a half, in the upper third. Although reported as a gunshot fracture, this specimen appears to illustrate injury such as might be received from a heavy wagon.

Contributed by Acting Assistant Surgeon Jas. McGuigan.

See classes **XV.** A. B. b.; **XV.** B. A. b.; **XVI.** B. A. b.

2339. The left calcaneum, fractured and supporting the astragalus, which is shattered by a conoidal ball lodged in it
b. 8. from the front.

Received, without history, from Fredericksburg.

See class **XXVII.** B. B. d.

253. The left astragalus and the lower halves of the tibia and fibula, three weeks after injury. The extremities of both
b. 9. bones of the leg are shattered by gunshot.

Corporal M. M., "D," 28th Massachusetts: Hatcher's Run, Va., 25th March; admitted hospital, Washington, 5th April; declined operative interference, and died from pyæmia, 14th April, 1865.

Contributed by Brevet Captain W. F. Norris, Assistant Surgeon, U. S. Army.

736. The bones of the left ankle, with the outer side of the astragalus and the lower portion of the tibia fractured and
b. 10. carious. There is some periosteal thickening upon the shafts of the leg bones. An unsuccessful attempt to save the joint was made. The articulation has been destroyed by ulceration.

Private M. A. McD., "K," 125th Pennsylvania: Antietam, 17th September; admitted hospital, Philadelphia, 27th September; died, 17th October, 1862.

Contributed by Surgeon Paul B. Goddard, U. S. Vols.

3899. The left tarsus, with the cuneiform bones fractured and the others necrosed, one month after injury. A round ball
b. 11. is attached, which was removed three days before death.

Private J. A., "D," 15th New Jersey: Funkstown, Md., 8th July; admitted hospital, Frederick, 15th July; died, 6th August, 1863.

Contributed by Acting Assistant Surgeon W. S. Adams.

See class **XXVII.** B. B. d.

3702. The right astragalus and calcaneum. The os calcis is shattered by a grape shot, which is attached.
b. 12. Private J. M., "A," 55th Massachusetts, colored: Grahamsville, S. C., 30th November; died of tetanus, Hilton Head, S. C., 8th December, 1864.

Contributed by Surgeon J. Trenor, U. S. Vols.

See class **XXVII.** B. B. d.

1157. A ligamentous preparation of the left foot, with the scaphoid and cuboid bones shattered by a grape shot of one
b. 13. and a half inches diameter, which entered the dorsum and escaped through the plantar surface. A piece of leather driven in between the astragalus and cuneiform bones remains in position. The missile also is preserved.

Contributed by Surgeon Meredith Clymer, U. S. Vols.

See 1158, **XXII.** A. A. a. 1.; 1159, **XXII.** A A. a. 2.

See classes **XXVII.** B. A. c.; **XXVII.** B′. B′.

948. The left tarsus and metatarsus and lower extremities of the leg bones, one month after injury. The external
b. 14. malleolus is fractured, and the tibia grooved by a bullet passing into the joint. The astragalus and tibia are both eroded by suppuration.

Sergeant G. B. H., "H," 11th Kentucky, 30: Murfreesboro', Tenn., 31st December, 1862; admitted hospital, Cincinnati, 23d; died, exhausted, 1st February, 1863.

Contributed by Surgeon John A. Murphy, U. S. Vols.

80. A ligamentous preparation of parts of the right tibia, fibula, astragalus and calcaneum. The transverse passage
b. 15. of a bullet across the anterior surface of the ankle has fractured its three bones.

Contributed by Acting Assistant Surgeon Warner.

290. A ligamentous preparation of the right ankle and lower halves of the bones of the leg. The external malleolus
b. 16. has been fractured by gunshot and is partially reunited. The articulating surface of the ankle is roughened by suppuration.

Contributed by Surgeon J. H. Brinton, U. S. Vols.

767. The lower thirds of the bones of the right leg, one month after injury. The tibia is comminuted with a fracture
b. 17. into the joint. The fractured portions are necrosed and around them some callus has been thrown out on the shaft, but there has been no attempt at union, nor does the joint show more than the destruction of cartilage. The subject died from a depressed fracture of the cranium.

Unknown, 63d New York: Antietam, 17th September; admitted hospital, Frederick, 22d September; died, 16th October, 1862.
Contributed by Acting Assistant Surgeon W. W. Keen, jr.
See 765, **I.** A. B. b. 61.

1800. The bones of the right leg, with the lower extremities shattered into the ankle. There has been a feeble attempt
b. 18. at repair in the shafts. The articulation is destroyed by suppuration.

Received after Gettysburg.

1801. The bones of the left leg, shattered into the ankle. Necrosed portions are about separating, and there is a feeble
b. 19. effort at reparation.

Received after Gettysburg.

626. A ligamentous preparation of the bones of the left foot, shattered through the ankle and tarsus, with the internal
b. 20. malleolus fractured. The missile appears to have entered the outer inferior border.

Contributed by Assistant Surgeon W. Moss, U. S. Vols.

3501. The bones of the left ankle, very carious, with the articulation entirely destroyed by suppuration after fracture
b. 21. of the external malleolus.

Contributor and history unknown.

1822. The astragalus and calcis and portions of the leg bones. The specimen appears to be a post mortem one, and
b. 22. represents an unsuccessful attempt to save the joint after fracture of the external malleolus A portion of the extremity of the fibula, perfectly dead, remains, and the articulation has been destroyed by suppuration without reparative effort.

Received after Gettysburg.

1799. The bones of the left ankle, fearfully shattered by a conoidal ball which split the lower extremity of the tibia,
b. 23. broke up the astragalus and traversed the calcaneum, in the posterior portion of which it is lodged, reversed. An apparent attempt to save the joint displays the effect of suppuration.

Received after Gettysburg.
See class **XXVII.** B. B. d.

1348. The bones of the left foot, one month after injury, with the tarsus carious. The ankle was shattered by a conoidal
b. 24. ball. The subject was predisposed to tuberculosis.

Private E. B., "E," 3d Wisconsin, 33: Beverly Ford, 9th June; admitted hospital, Washington, 10th June; died, 8th July, 1863.
Contributed by Surgeon G. S. Palmer, U. S. Vols.

4580. The greater portion of the bones of the right leg, with the fibula transversely fractured in the lowest fourth and
b. 25. the anterior portion of the tibia shattered into the ankle. There was also a flesh wound of each leg and of the thorax.

Private Wm. H. P., "C," 1st Massachusetts Heavy Artillery, 39: Spottsylvania, 19th May; admitted hospital, Washington, 22d; died from pyæmia, 30th May, 1864.
Contributed by Assistant Surgeon J. C. McKee, U. S. Army.

2546. The bones of the left tarsus and metatarsus, honeycombed with caries, after fracture involving the ankle.
b. 26. Contributor and history unknown.

677. A ligamentous preparation of the right ankle and foot, showing shell wounds. The external malleolus and
b. 27. adjoining portion of the astragalus are fractured, and the scaphoid, external and middle cuneiform and second and third metatarsals are shattered.

Private W. A. R., "I," 123d Pennsylvania.
Contributed by Surgeon Thomas Antisell, U. S. Vols.

766. A ligamentous preparation of the left ankle and adjacent bones, fractured by perforation by a conoidal ball, six
b. 28. weeks after injury. The articulation is destroyed by suppuration. No operation was performed on account of the subject's weakness from an abdominal wound received at the same time.

Private L. S. P., "E," 3d North Carolina (Rebel): Antietam, 17th September; died, Frederick, 25th October, 1862.
Contributed by Acting Assistant Surgeon W. W. Keen, jr.
See 852, **XXII.** A. B. a. 6.

3360. The lower portions of the bones of the left leg, the astragalus and calcaneum. The articulating surfaces have
b. 29. been torn away by gunshot and the fractured remains are carious and have been wasted by suppuration. A little callus has been deposited externally on the tibia, and the fibula has lost a small segment of the shaft four inches above the joint. The astragalus and calcis are anchylosed.

Private J. C., "A," 90th Illinois, 18: Mission Ridge, 25th November, 1863; admitted hospital, Nashville, 4th February; "died from the effects of chloroform at the time of the operation for the extraction of the ball," 8th March, 1864.

Contributed by Surgeon R. L. Stanford, U. S. Vols.

See 2188, **XVI.** A. B. b. 31.

275. An interesting specimen of vigorous attempt at repair after gunshot fracture of the leg bones involving the right
b. 30. ankle. The external malleolus has been broken off and the tibia obliquely fractured in its lowest fourth. A large quantity of callus was thrown out, and the fragments of the tibia were tolerably agglutinated. The extremity of the fibula is attached to the tibia. The joint has suffered from suppuration.

Private H. W., "D," 9th New York, 20: Antietam, 17th September; amputated by Surgeon T. H. Squire, 89th New York, 21st October, 1862. Recovered.

Contributed by the operator.

2188. The bones of the right ankle, five and a half months after fracture. The fibula was shattered, three inches above
b. 31. the joint, by a conoidal ball which passed downward lodging in the tibia, which it split into the joint. The fractured portions are carious and the articulation is destroyed by suppuration. Reported as below, but probably an error.

Private J. C., "A," 90th Illinois, 18: Chickamauga, 19th September, 1862; admitted hospital, Nashville, 4th February; died, 7th March, 1864.

Contributed by Acting Assistant Surgeon H. C. May.

See 3360, **XVI.** A. B. b. 29.

See class **XXVII.** B. B. d.

2240. The bones adjacent to the right ankle, seven months after injury. The ankle was fractured by a bullet passing
b. 32. transversely, shattering the inner malleolus. An attempt was made to save the limb and obtain anchylosis of the ankle joint. The tarsal articulations are destroyed and all the bones carious. There is some callus thrown out at the extremity of the tibia.

Private H. H., "D," 3d Wisconsin, 18: Chancellorsville, 3d May; admitted hospital, Washington, 14th June; died, exhausted, 1st December, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

857. The greater part of the left calcaneum, and a portion of the astragalus much shattered. The point of interest is
b. 33. a superficial deposit of callus on the inner surface of the calcis.

Contributor and history unknown.

c. Caries Consecutive upon Other Injury than Fracture of the Bones of the Joint.

1949. The lower extremities of the bones of the left leg, showing the articular surfaces destroyed by ulceration without
c. 1. direct fracture.

Private E. P. H., "I," 1st Minnesota: Gettysburg, 2d July; left leg amputated; died, 4th August, 1863.

Contributor unknown.

For other illustrations, see 3332, **XVI.** A. B. f. 57; 2865, **XVI.** A. B. f. 126; 483, **XVI.** A. B. f. 177.

d. Excisions.

506. Several fragments, representing excised portions of the second, third and fourth metatarsal bones.
d. 1. Private W. McK., "H," 3d Michigan: Fair Oaks, 31st May; excised, Washington, 24th June; died, 6th July, 1862.

Contributed by Acting Assistant Surgeon D. W. Cheever.

2324. Nine pieces of bone, representing an excision of the first, fourth and fifth metatarsal, and the removal of the
d. 2. internal and middle cuneiform bones.

Private T. G., "I," 9th Massachusetts: removed by Acting Assistant Surgeon C. H. Von Tagen, May, 1864.

Contributed by the operator.

1286. The right calcaneum, excised for caries following gunshot, five months after injury. A conoidal ball at short
d. 3. range perforated the os calcis, and the specimen exhibits general caries.

Sergeant T. C. B., "C," 81st Pennsylvania, 18: Fredericksburg, 13th December, 1862; admitted hospital, Philadelphia, 6th January; excision performed by Assistant Surgeon C. R. Greenleaf, U. S. Army, 16th May, 1863. Recovered.

Contributed by the operator.

3045. One inch of the shaft of the left tibia and fibula, excised from the lower extremities for caries following fracture.
d. 4. Private A. B. McC., "E," 188th Pennsylvania, 21: Cold Harbor, 3d June; admitted hospital, Washington, 15th June; excised by Surgeon R. B. Bontecou, U. S. Vols., 12th July; died, 21st July, 1864.

Contributed by the operator.

3035. The bones of the right tarsus and the lower extremity of the tibia. A bullet entering above the inner malleolus
d. 5. fractured it and the astragalus and calcis.

Private J. C. P., "B," 81st New York, 27: Cold Harbor, 3d June; admitted hospital, Washington, 15th June; "ankle joint resected" by Surgeon R. B. Bontecou, U. S. Vols., 7th July; died, 17th July, 1864.

Contributed by the operator.

e. Amputations in the Tarsus.

540. The left ankle, fractured in the astragalus, upon which Pirogoff's amputation has been performed.
e. 1. Contributed by Surgeon J. E. Prince, 36th Massachusetts.

See class **XVI.** D.

1650. A portion of the right foot, one month after injury. The tarsus is perforated by a musket ball, with great effusion
e. 2. of callus. The track is necrosed.

Private E. McE., "B," 73d New York, 23: Gettysburg, 2d July; admitted hospital, Baltimore, 10th July; Chopart's amputation, 4th August; discharged, 16th December, 1863.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

See class **XVI.** D.

2028. A part of the right foot, one month after injury. The metatarsus is badly shattered by a conoidal ball. Some of
e. 3. the fragments are necrosed, and a slight effusion of callus has occurred in the neighboring parts.

Private W. A. E., "C," 6th Maine, 25: Rappahannock Station, 7th November; admitted hospital, Washington, 9th November; Pirogoff's amputation by Surgeon R. B. Bontecou, U. S. Vols., 6th December, 1863. Recovered.

Contributed by the operator.

See class **XVI.** D.

3007. Portions of the calcaneum, scaphoid, cuneiform and metatarsals of the right foot after Chopart's amputation for
e. 4. accidental fracture by gunshot.

Private J. McC., "F," 48th New York, 38: admitted hospital, Beaufort, S. C., 7th March; posterior tibial ligated for gangrene; Chopart's amputation, 23d March; inner half os calcis separated, 17th May; sent North nearly well, 13th September, 1864.

Contributed by Acting Assistant Surgeon C. T. Reber.

See classes **XVI.** D.; **XXIII.** A. B.

4493. The right foot, after Chopart's amputation for fracture of the first three metatarsals. Missile entered the sole and
e. 5. lodged near the inner malleolus.

Private S. H., "F," 11th Pennsylvania Reserves: Fredericksburg, 13th December; Chopart's amputation, Washington, 23d December, 1863; died from pyæmia, 15th January, 1863.

Contributed by Assistant Surgeon G. M. McGill.

See class **XVI.** D.

2983. A portion of the left calcaneum and shattered astragalus, with a battered conoidal ball
e. 6. attached. Pirogoff's amputation appears to have been performed. *See figure* 137.

Received, without history, from City Point.

See classes **XVI.** D.; **XXVII.** B. B. d.

FIG. 137. Shattered astragalus and sawn calcaneum from a Pirogoff case. *Spec.* 2983.

3068. The left tarsus and part of the metatarsus, one month after injury. Bullet entered the
e. 7. middle of the first metatarsal bone and emerged at the base of the second and third toes, which were immediately amputated.

Private E. R. F., "I," 32d Maine, 44: accidentally, at White House, Va., 15th June; admitted hospital, Washington, 20th June; amputated, by Syme's operation, by Surgeon R. B. Bontecou, U. S. Vols., 18th July; died, exhausted, 23d July, 1864.

Contributed by the operator.

See class **XVI.** D.

3054. The bones of the left tarsus, after amputation by Pirogoff's method. The malleoli and a thin section of the tibia
e. 8. were sawn off and the calcaneum divided. The fractured tarsal bones are preserved.

Private S. S., "K," 80th New York, 47: Wilderness, 10th May; admitted hospital, Washington, 14th; amputated, by a modification of Pirogoff's, for excessive nervous irritation, by Surgeon R. B. Bontecou, U. S. Vols., 2d May; died of pyæmia, 19th June, 1864.

Contributed by the operator.

See class **XVI.** D.

296. A ligamentous preparation of the right foot, with the external portions of the tarsus and metatarsus shattered, on
e. 9. which Syme's amputation has been performed.

Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

See class **XVI.** D.

303. The left tarsus, with the calcaneum fractured. Syme's amputation has been performed.
e. 10. Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

See class **XVI.** D.

691. A ligamentous preparation of the scaphoid, cuboid and cuneiform bones and the metatarsus of the left foot. The
e. 11. bases of the second and third metatarsals are fractured by a bullet which appears to have entered the dorsum, passing directly through. Syme's amputation is represented to have been performed. If such was the case, the remaining bones have not been contributed.

Private D. C. H., "A," 4th New Hampshire: Pocotaligo, S. C., 22d October; amputated, by Syme's method, by Acting Assistant Surgeon Thomas S. Smiley; died of pyæmia, 12th November, 1862.

Contributed by Assistant Surgeon J. E. Semple, U. S. Army.

See class **XVI.** D.

2783. The lower borders of the tibia and fibula, the astragalus and a slice of the upper portion
e. 12. of the calcaneum from the right ankle. The astragalus is fractured and carious and the tibial articulation eroded. Amputation, after the manner of Pirogoff, was successfully performed. Three-fourths of an inch of the shaft of the tibia, besides the malleoli, was sawn off. *See figure* 139.

Private O. C., "B," 7th Wisconsin, 17: Gettysburg, 1st July; admitted hospital, Philadelphia, 13th; amputated, on account of sloughing, by Acting Assistant Surgeon Addinell Hewson, 1st August, 1863. Recovered, with one inch shortening.

Contributed by the operator.

See **XVI.** D.

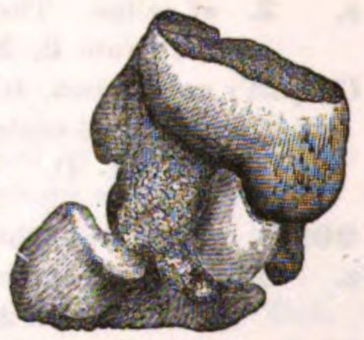

FIG. 139. Portions of tibia, fibula, astragalus and calcaneum, from a successful Pirogoff's amputation. *Spec.* 2783.

For other illustrations, see 887, **XV.** C. 11.

f. AMPUTATIONS IN THE LEG OR THIGH.

4702. The right ankle, one month after injury. The inner malleolus is fractured and the lower extremity of the shaft of
f. 1. the tibia shattered. There is no attempt at repair, but absorption of the cancellated structure of the fibula, astragalus and calcaneum has occurred.

Private I. L., "A," 8th Michigan: Antietam, 17th September; amputated lowest third, Locust Spring Hospital, Md., 4th October, 1862. Recovered.

Contributed by Surgeon T. H. Squire, 89th New York.

479. A ligamentous preparation of the right tarsus and lower extremities of the leg bones, with the outer malleolus
f. 2. fractured.

Private J. S., "H," 90th Pennsylvania, 29: Fredericksburg, 13th December; amputated just above the ankle by Acting Assistant Surgeon Weisel, 25th December, 1862; died from pyæmia, 12th January, 1863.

Contributed by the operator.

4576. The right tarsus and metatarsus. The smaller tarsal bones are much fractured and carious.
f. 3. Private A. S. W., "E," 3d New Jersey, 22: Spottsylvania, 8th May; amputated by Acting Assistant Surgeon Chas. A Lindsay, Washington, 28th May; died from pyæmia, 13th June, 1864.

Contributed by the operator.

4548. A ligamentous preparation of the left tarsus and lower portions of the bones of the left leg, with the astragalus
f. 4. and under surface of the external malleolus fractured by a ball which entered from behind and lodged in the joint.

Private J. C., "B," 7th Pennsylvania Reserves: Fredericksburg, 13th December; admitted hospital, and amputated by Surgeon H. Bryant, U. S. Vols., Washington, 27th December, 1862. Recovered.

Contributed by the operator.

4545. The astragalus, calcaneum, cuboid and scaphoid of the right tarsus. The calcaneum in its anterior portion was
f. 5. broken and the fibula reported fractured.

Second Lieutenant E. C. G., "A," 139th Pennsylvania, 24: Wilderness, 5th May; admitted hospital, Alexandria, 12th; amputated by the circular method, in the middle third of the leg, by Dr. Frank H. Hamilton, 25th May; died of pyæmia, 5th June, 1864.

Contributed by the operator.

4577. The lowest thirds of the bones of the left leg. The fibula is obliquely fractured. The tibia is comminuted, with
f. 6. a longitudinal fracture in the middle of the bone into the ankle.

Private J. M., "E," 8th Pennsylvania Reserves, 20: Fredericksburg, 13th December; amputated by Assistant Surgeon Geo. M. McGill, U. S. Army, Washington, 24th December, 1862; died of pyæmia, 19th January, 1863.

Contributed by the operator.

2421. The right astragalus and a portion of the os calcis, three weeks after injury. The posterior half of the calcaneum
f. 7. has been carried away by a conoidal ball. A slight layer of callus is seen on the internal surface, and a portion of the upper surface which had been split off remains in apposition partially united.

Private W. G., "C," 15th (?) U. S. Infantry, 18: Spottsylvania C. H., 12th May; admitted hospital, Washington, 18th May; amputated by Surgeon D. W. Bliss, U. S. Vols., 2d June, 1864.

Contributed by the operator.

386. The left astragalus and calcaneum, fractured by a round ball at their posterior articulation.
f. 8. Private P. F., "D," 108th New York: Antietam, 17th September; admitted hospital, Frederick, 26th September; amputated in the leg by Acting Assistant Surgeon James H. Peabody, 12th October, 1862.

Contributed by the operator.

3359. Several tarsal bones, somewhat eroded, one month after injury. A conoidal ball fractured the tarsus and opened
f. 9. the ankle. No attempt at repair.

Sergeant J. C., "I," 124th Ohio, 27: Rocky Faced Ridge, Ga., 9th May; admitted hospital, Nashville, 27th May; amputated, 11th June, 1864.

Contributed by Acting Assistant Surgeon H. C. May.

575. The left calcaneum, shattered by gunshot.
f. 10. Sergeant H. D., 8th Pennsylvania Reserves: probably Fredericksburg, 13th December; amputated in the leg by Surgeon H. Bryant, U. S. Vols., Washington, 24th December, 1862.

Contributed by Assistant Surgeon George M. McGill, U. S. Army.

1459. The right tarsus and metatarsus, three weeks after injury. A conoidal ball has passed transversely through the
f. 11. foot, fracturing to comminution the bones just anterior to the astragalus and calcaneum. There is no attempt at repair.

First Lieutenant O. T., "C," 119th New York: Gettysburg, 1st July; admitted hospital, Baltimore, 9th; amputated for secondary hæmorrhage, 20th July, 1863.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

3300. The left tarsus and metatarsus, fractured by gunshot. The calcaneum has been longitudinally broken and the
f. 12. smaller bones are missing.

Private S. S. F., "C," 1st Massachusetts Heavy Artillery, 43: Spottsylvania C. H., 15th May; amputated in leg by Surgeon D. P. Smith, U. S. Vols., near Alexandria.

Contributed by the operator.

2829. The right tarsus and metatarsus, three weeks after injury. The internal cuneiform bone is carried away and the
f. 13. base of the metatarsal of the great toe is fractured. The adjacent bones show the effects of suppuration.

Corporal A. J. K., "M," 1st Maine Heavy Artillery, 34: Petersburg, 18th June; admitted hospital, Washington, 25th June; amputated by Acting Assistant Surgeon W. L. Baxter, 10th July, 1864. Recovered.

Contributed by the operator.

1031. The right tarsus and metatarsus, three weeks after injury. The internal cuneiform bone has been carried away
f. 14. and the base of the first metatarsal bone fractured. The tarso-metatarsal articulation has been destroyed by suppuration, and the commencement of necrosis is observable in nearly all the bones.

Private S. L., "I," 29th Missouri: Vicksburg, 29th December, 1862; admitted hospital, Paducah, Ky., 13th January; amputated, 19th; died, 23d January, 1863.

Contributed by Surgeon H. P. Stearns, U. S. Vols.

2497. A portion of the left tarsus, with the calcaneum shattered. This man was also wounded in the right shoulder.
f. 15. Private A. J. W., "A," 8th New York Artillery: Cold Harbor, 3d June; amputated by Surgeon E. Bentley, U. S. Vols., Alexandria, 8th June; died from exhaustion, 10th July, 1864.
Contributed by Acting Assistant Surgeon J. T. Smith.
See 3340, **XV.** A. B. f. 28.

1606. A ligamentous preparation of the left ankle, completely shattered.
f. 16. Private D. C. G., "E," 111th New York: probably Gettysburg, 3d July; admitted hospital, Baltimore, 15th; leg amputated, 27th July, 1863; discharged the service, 10th September, 1863.
Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

55. A ligamentous preparation of the left foot, with the external malleolus and astragalus fractured and the calcaneum
f. 17. and cuboid shattered.
—— F.: died.
Contributed by Assistant Surgeon J. S. Billings, U. S. Army.

3942. The right tarsus, with the calcis and astragalus fractured by a conoidal ball.
f. 18. Private H. J. H., "D," 12th Georgia, (Rebel,) 24: Monocacy, 9th July; amputated in the lowest third, Frederick, 22d; died, 31st July, 1864.
Contributed by Acting Assistant Surgeon T. E. Mitchell.

649. A ligamentous preparation of the right foot, with the lower portions of the leg bones. The internal malleolus
f. 19. has been shot away.
Private G. S. C., "G," 6th Pennsylvania: Fredericksburg, 13th December; admitted hospital, Washington, 23d; amputated in the lowest third of the leg, 25th December, 1862.
Contributed by Acting Assistant Surgeon A. W. Tryon.

4054. The lower portions of the bones of the left leg. The tibia is fractured by a round ball entering anteriorly and
f. 20. lodging just above the ankle, fissuring into it.
Private L. V., "K," 91st New York, 21: Petersburg, 31st March; admitted hospital, Washington, 6th April; amputated lowest third of the leg by Assistant Surgeon A. Delaney, U. S. Vols., 11th April; discharged, 21st June, 1865.
Contributed by the operator.
See class **XXVII.** B. B. d.

3285. The left ankle, with a conoidal ball lodged in the articulation, having comminuted the anterior extremity of the
f. 21. tibia. The missile is solid, resembling a slug more than the ordinary minie bullet. The leg was amputated just above the malleoli.
Private G. S., "I," 20th Maine: Chapin's Farm, Va., 30th September; amputated by Surgeon R. B Bontecou, U. S. Vols., Washington, 11th October; died, 19th October, 1864.
Contributed by the operator.
See class **XXVII.** B. B. d.

2548. The lowest thirds of the bones of the left leg, with the posterior portion of the tibia fractured into the joint.
f. 22. Private J. A. M., "A," 10th Connecticut: Cold Harbor, Va., 1st June; amputated in the lowest third, Alexandria, 7th June, 1864; discharged, 2d January, 1865.
Contributed by Surgeon E. Bentley, U. S. Vols.

2765. The bones of the left tarsus and extremities of the tibia and fibula. The inner malleolus and astragalus are
f. 23. fractured, and the internal cuneiform bone chipped.
Private C. F. B., "F," 1st Connecticut Cavalry, 24: Petersburg, 20th June; admitted hospital, Washington, 2d July; amputated in lowest third by Surgeon A F. Sheldon, U. S. Vols., 3d July, 1864. Recovered.
Contributed by the operator.
See 4700, **XXV.** A. B. b. 239.

2474. The lowest thirds of the bones of the left leg, with the inner two inches of the tibia broken off into the joint.
f. 24. Private T. H. T., "G," 2d Massachusetts Cavalry (?): wounded, 22d May; amputated in lowest third by Acting Assistant Surgeon Ottman, Washington, 30th May; died, 9th June, 1864.
Contributed by Surgeon G. L. Pancoast, U. S. Vols.

1453. A ligamentous preparation of the left tarsus and lower portion of the leg bones, three weeks after injury. The
f. 25. external malleolus was fractured, and amputation was required by the infiltration of pus.
Private M. N., "I," 73d New York, 23: Gettysburg, 2d July; admitted hospital, Baltimore, 16th; amputated in the lowest third, 21st July; died, 1st August, 1863.
Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

2662. The lowest thirds of the bones of the left leg, with the tibia fractured on the anterior aspect of the articulating
f. 26. surface.

Private L. P., "G," 28th Massachusetts, 48: Cold Harbor, Va., 2d June; admitted hospital, Alexandria, 7th; amputated lowest third by Surgeon E. Bentley, U. S. Vols., 9th June, 1864. Recovered.

Contributed by the operator.

1605. A ligamentous preparation of the right tarsus and metatarsus, three weeks after injury. The astragalus has been
f. 27. perforated transversely by a conoidal ball. There is no attempt at repair. The left ankle was fractured at the same time, and the leg was amputated the day before the operation upon this limb.

Private M. Y., "E," 120th New York, 20: Gettysburg, 2d July; admitted hospital, Baltimore, 16th; amputated in the lowest third by Acting Assistant Surgeon F. Hinkle, 28th July; died, 9th August, 1863.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

See 1609, **XVI.** A. B. f. 162.

1667. A ligamentous preparation of the right ankle, nearly eight weeks after injury. The posterior portion of the
f. 28. astragalus is fractured and carious, and the joint appears anchylosed.

Private S. D. F., "F," 105th Pennsylvania: Gettysburg, 2d July; admitted hospital, Baltimore, 16th July; amputated in the lowest third by Acting Assistant Surgeon F. Hinkle, 25th August; discharged, 27th August, 1864.

Contributed by Assistant Surgeon D C. Peters, U. S. Army.

4276. The bones of the right foot and ankle, an unknown period after injury. The external malleolus was fractured and
f. 29. the missile passed obliquely downward through the calcis. The ankle is thoroughly disintegrated. When admitted to hospital, this subject labored under confirmed phthisis.

Private J. W. P., "E," 3d West Virginia Cavalry: admitted hospital, Cumberland, Md., 14th March; amputated in the lowest third of the leg, 3d April, 1863.

Contributed by Surgeon J. B. Lewis, U. S. Vols.

3534. The bones of the left ankle, twenty-four days after fracture by shell. The internal malleolus and part of the
f. 30. astragalus are fractured and lost. The articulation has been destroyed by suppuration, and no attempt at repair has been made.

Private G. A. W., "A," 20th Maine, 19: Wilderness, 6th May; admitted hospital, Washington, 12th; amputated in the lowest third, 30th May; died from exhaustion following operation, and chronic diarrhœa, 10th July, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

439. A ligamentous preparation of the left tarsus and metatarsus, with the inner malleolus and astragalus fractured by
f. 31. a musket ball perforating the ankle.

Private C. S., 1st Pennsylvania Reserves: South Mountain, 14th September; amputated in the lowest third by Surgeon H. S. Hewit, U. S. Vols., Frederick, 12th October; died, 19th October, 1862.

Contributed by the operator.

1306. The lower extremity of the right tibia, shattered, with the cancellated portion carious.
f. 32. Private J. W., "C," 159th New York, 25: Port Hudson, La., 27th May; amputated in the lowest third, New Orleans, 8th June, 1863.

Contributed by Assistant Surgeon P. S. Conner, U. S. Army.

1173. The lower extremities of the bones of the left leg, with the tibia shattered into the ankle. A battered bullet is
f. 33. lodged in the bone.

Private W. J., 52d New York: Chancellorsville, 3d May, 1863; amputation was performed in the lowest third fourteen days after injury.

Contributed by Surgeon C. S. Wood, 66th New York.

See class **XXVII.** B B. d.

650. A ligamentous preparation of the lower extremities of the bones of the right leg and tarsus, with the external
f. 34. malleolus fractured. When admitted to the hospital the joint was filled with pus, with great constitutional disturbance.

Private C. Z., "E," 8th Pennsylvania Reserves: Fredericksburg, 13th December; admitted hospital, Washington, 23d; amputated in the lowest third by Acting Assistant Surgeon A. W. Tryon, 25th December, 1862.

Contributed by the operator.

1649. A ligamentous preparation of the left foot, fractured by the astragalus being carried away and the internal
f. 35. malleolus being broken off, with an oblique fracture of the tibia. The fractured extremities are carious.

Sergeant A. D. McP., "A," 105th Pennsylvania: probably Gettysburg, 3d July; admitted hospital, Baltimore, 16th July; amputated in the lowest third of the leg, 1st August, 1863; discharged, 9th June, 1864.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

1548. The lowest thirds of the bones of the left leg. The extremity of the fibula is carried away and the tibia is badly
f. 36. split. A round ball and piece of cloth yet remain in the tibia above the articulation.
—— G.: amputated.
Contributed by Surgeon R. Thomain, 29th New York.
See classes **XXVII.** B. B. d.; **XXVII.** B′. B′.

2470. The right astragalus and lower portion of the tibia. The tibia is shattered by a conoidal ball at the articulation.
f. 37. The leg was amputated in the lowest third on account of secondary hæmorrhage, the bullet having grazed the posterior tibial, possibly driving some small spiculæ of bone into it. The arterial specimen has been lost.
Private J. H., "D," 6th U. S. Cavalry: wounded, 31st May; amputated, Washington, 8th June; died, 21st June, 1864.
Contributed by Surgeon J. A. Lidell, U. S. Vols.

1346. The left tarsus and lowest thirds of the bones of the leg. The bones about the joint are thoroughly carious.
f. 38. Private E., "E," 120th New York: probably Chancellorsville, 3d May; admitted hospital, Washington, 15th June; discharged while on furlough, 16th November, 1863.
Contributed by Assistant Surgeon H. Allen, U. S. Army.

981. The lowest third of the right tibia and the astragalus. The outer malleolus is shattered, and an oblique fracture
f. 39. of the shaft of the tibia has extended its base over the extremity of the bone.
Private J. P., "H," 123d Pennsylvania: Fredericksburg, 13th December; admitted hospital, Alexandria, 18th; amputated, 28th December, 1862.
Contributed by Surgeon E. Bentley, U. S. Vols.

596. The lowest thirds of the bones of the left leg. The tibia was perforated into the articulation and the inner
f. 40. malleolus split. A slight periosteal disturbance is to be observed.
Private A. B. A., "C," 16th Maine, 19: Fredericksburg, 13th December; amputated by Surgeon E. Bentley, U. S. Vols., Alexandria, 22d December, 1862.
Contributed by the operator.

3808. The left tarsus and metatarsus, with the astragalus and cuboid bones shattered by a conoidal ball.
f. 41. Private J. K. V., "B," 1st Virginia: Ashby's Gap, Va, 24th July; admitted hospital, Frederick, Md., 27th July; amputated in the lowest third, 4th August; died, 20th August, 1864.
Contributed by Acting Assistant Surgeon A. R. Gray.

1136. The right ankle. The inferior external extremity of the tibia is crushed by a musket ball which passed downward
f. 42. into the joint. The articulation is eroded.
Private P. S., "K," 4th U. S. Artillery: Chancellorsville, 3d May; amputated in the lowest third by Surgeon J. H. Baxter, U. S. Vols., 20th May, 1863.
Contributed by the operator.

136. The astragalus and calcaneum of the right tarsus, both badly fractured.
f. 43. Private J. B. W., "H," 16th Massachusetts, 30: Second Bull Run, 30th August; amputated in the lowest third of the leg, after hæmorrhage from the anterior tibial, 14th September, 1862. Recovered.
Contributed by Assistant Surgeon C. A. McCall, U. S. Army.

733. A ligamentous preparation of a portion of the right lower extremity, with the tarsus shattered by grape shot and
f. 44. amputation performed in the lowest third of the leg.
Contributed by Assistant Surgeon J. E. Semple, U. S. Army.

2211. Portions of the right calcaneum and astragalus, shattered by a bullet passing through the joint from above,
f. 45. downward and backward. The tibia was implicated.
Private D. E. V., "E," 76th New York: amputated in the lowest third, April, 1864.
Contributed by Surgeon N. D. Ferguson, 8th New York Cavalry.

4055. The right tarsus, with the astragalus shattered and the os calcis fractured.
f. 46. Private E. W., "E," 3d Delaware, 25: Petersburg, 1st April; admitted hospital, Washington, 6th; amputated lowest third of the leg by Acting Assistant Surgeon F. Hall, 11th April, 1865. Recovered.
Contributed by the operator.

597. A ligamentous preparation of the bones of the left ankle, with the astragalus longitudinally fractured.
f. 47. Private W. W. W., "E," 16th Maine, 20: Fredericksburg, 13th December; amputated lowest third of leg by Surgeon E. Bentley, U. S. Vols., 22d December, 1862; discharged the service, 21st May, 1863.
Contributed by the operator.

1347. The lower extremities of the bones of the right leg. The external malleolus is broken off.
f. 48. Corporal G. B. S., "H," 8th New York Cavalry, 19: probably Beverly Ford, Va., 9th June; admitted hospital, Washington, 10th; amputated lowest third, 23d June; died, 1st July, 1863.
Contributed by Surgeon G. S. Palmer, U. S. Vols.

1851. The right tarsus and the lowest thirds of the bones of the leg, three weeks after injury.
f. 49. The astragalus, immediately behind and below the internal malleolus, was slightly fractured by a ball which remained at the point of impingement until extracted by the fingers. The astragalus is carious where fractured.
Private J. F., "K," 27th Indiana, 24: Chancellorsville, 3d May; admitted hospital, Washington, 7th; amputated lowest third by Assistant Surgeon W. Thomson, U. S. Army, 21st May; discharged the service, 16th September, 1863.
Contributed by the operator.

2533. The bones of the left tarsus, shattered by a ball which fractured the inner malleolus and passed longitudinally
f. 50. through the foot.
Private J. B. C., "I," 8th New York Artillery: Cold Harbor, 3d June; admitted hospital, Alexandria, 7th; amputated lowest third, 14th June; discharged the service, 10th November, 1864.
Contributed by Surgeon E. Bentley, U. S. Vols.

1736. A ligamentous preparation of a portion of the left foot, with the external malleolus shattered and the astragalus
f. 51. and tibia grooved by a musket ball perforating the joint. The subject suffered from a scorbutic taint when wounded
Private J. S., "C," 5th New York Cavalry, 30: Culpeper, 11th October; admitted hospital, Washington, 12th amputated in lowest third of leg and, from the condition of the tissues, immediately reamputated lowest third of thigh by Surgeon D. W. Bliss, U. S. Vols., 17th October, 1863; discharged, 27th July, 1864.
Contributed by the operator.

402. A ligamentous preparation of the right tarsus and metatarsus, with the astragalus shattered by a conoidal ball
f. 52. perforating from rear to front.
Private J. W., "H," 61st New York: Antietam, 17th September; amputated in the lowest third by Surgeon H. S. Hewit, U. S. Vols., Frederick, 29th September, 1862. Recovered.
Contributed by the operator.

562. The bones of the left ankle, with the astragalus transversely fractured just posterior to the tibia.
f. 53. Private H. H., "C," 7th Pennsylvania Reserves: Fredericksburg, 13th December; admitted hospital, Washington, 23d; amputated in the lowest third, on account of secondary hæmorrhage, 24th December, 1862. Result believed to have been fatal.
Contributed by Acting Assistant Surgeon F W. Dearing.

980. The bones of the right ankle, shattered by a conoidal ball. The extremity of the tibia and the astragalus are
f. 54. comminuted.
Private H. K., "A," 18th Massachusetts: Fredericksburg, 14th December; amputated in the lowest third, Washington, 19th December, 1862.
Contributed by Acting Assistant Surgeon W. A. Harvey.

3922. The bones of the left ankle, twenty-four days after fracture. The external malleolus is grooved, the astragalus
f. 55. shattered, the tibia splintered and the articulation destroyed by suppuration. The wound was received while being carried off the field with a perforating wound of the chest.
Private R. C., "F," 14th New Jersey, 21: Monocacy, 9th July; admitted hospital, Frederick, 10th July; amputated in the lowest third, 3d August, 1864. Recovered.
Contributed by Acting Assistant Surgeon J. C. Shimer.

1903. A ligamentous preparation of the left tarsus, one month after injury. A bullet passed through the calcaneum,
f. 56. which is necrosed, grazing the astragalus and opening the ankle joint. There is no perceptible attempt at repair.
Private L. M., "I," 119th Pennsylvania, 22: Rappahannock Station, Va., 7th November; admitted hospital, Baltimore, 9th November; amputated lowest third by Surgeon D. W. Bliss, U. S. Vols., 6th December, 1863. Died of pyæmia.
Contributed by the operator.

3332. The bones of the right ankle, after amputation in the middle third of the leg on account of suppuration of the
f. 57. joint following section of the tendo Achillis.
Corporal E. D. G., "D," 25th Massachusetts, 21: Cold Harbor, 3d June; admitted hospital, Washington, 10th June, 1864; amputated by Acting Assistant Surgeon B. F. Butcher. Recovered.
Contributed by the operator.
See class **XVI.** A. B. C.

3356. A ligamentous preparation of the right tarsus and metatarsus, one month after injury, with a conoidal ball lodged
f. 58. in the astragalus, which is carious.

Private C. H., "C," 33d Massachusetts: Dallas, Ga., 25th May; admitted hospital, Nashville, 26th May; amputated in the lowest third, 26th June, 1864.

Contributed by Acting Assistant Surgeon L. B. McNabb.

See class **XXVII.** B. B. d.

4248. The bones of the right ankle, eight months after injury. The outer border of the calcaneum has been grooved
f. 59. and the posterior portion of the astragalus carried away, both of which are carious where fractured. The articulation is anchylosed, and the shaft of the tibia and fibula show marked periosteal disturbance for several inches.

Private S. B. D., "B," 97th Indiana, 24: Kenesaw Mountain, Ga., 27th June; admitted hospital, Louisville, 29th November, 1864; amputated in the lowest third by Surgeon R. R. Taylor, U. S. Vols., 18th February, 1865.

Contributed by the operator.

3496. Part of the tarsal bones of the left foot, carious, after injury. No attempt at repair.
f. 60. Private L. Van G., "D," 107th New York, 21: Dallas, Ga., 25th May; admitted hospital, Nashville, 2d June; amputated in the lowest third, 24th June; died from diarrhœa, 29th July, 1864.

Contributed by Acting Assistant Surgeon H. C. May.

13. Parts of the left calcaneum, astragalus, scaphoid and cuboid, one month after fracture. The articular surfaces
f. 61. are destroyed and the bones are carious.

Private D. M, "A," 11th Maine: Fair Oaks, 31st May; amputated lowest third of leg, Washington, 25th June; died of tuberculosis, 25th July, 1862.

Received from Judiciary Square Hospital.

364. A portion of the right foot, fractured through the bases of the metatarsal bones by a conoidal ball.
f. 62. Private H. J. O., 14th Tennessee (Rebel): Antietam, 17th September; amputated in the lowest third of the legs by Assistant Surgeon C. Bacon, U. S. Army, Frederick, 21st October, 1862.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

1251. A ligamentous preparation of the right ankle and tarsus. The calcaneum was transversely perforated from
f. 63. within in its posterior half by a conoidal ball.

Private J. A., "A," 15th New Jersey: Second Fredericksburg, 3d May; entered hospital, Washington, 8th; amputated in the lowest third of the leg by Acting Assistant Surgeon C. Carvallo, 16th; died, 19th May, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

2663. The right os calcis, fractured by musket shot.
f. 64. Private D. C., "F," 28th Massachusetts, 32: Cold Harbor, 3d June; amputated in the lowest third by Surgeon E. Bentley, U. S. Vols., Alexandria, 9th June, 1864; discharged the service, 25th May, 1865.

Contributed by the operator.

2664. The right calcaneum, fractured in its posterior portion.
f. 65. Private F. T., "H," 8th New York Heavy Artillery, 31: Cold Harbor, 3d June; admitted hospital, Alexandria, 7th; amputated lowest third by Surgeon E. Bentley, U. S. Vols, 9th June, 1864.

Contributed by the operator.

2763. A portion of the bones of the left foot, with the internal cuneiform missing and the first metatarsal fractured at
f. 66. its base.

Private H. R., "F," 2d New York Heavy Artillery, 52: admitted hospital, Washington, 30th June; amputated lowest third of leg, 4th July. Died.

Contributed by Surgeon A. F. Sheldon, U. S. Vols.

2054. A ligamentous preparation of the right tarsus and metatarsus, one month after injury. The missile appears to
f. 67. have lodged between the articulating extremities of the tibia and fibula, both of which are broken. The fibula, fractured two inches above the malleolus, has united, but the articulation is destroyed by suppuration.

Sergeant E. O. T., "E," 14th South Carolina, (Rebel,) 18: Gettysburg, 3d July: amputated in lowest third, Chester, Penna., 3d August, 1863. Recovered

Contributed by Acting Assistant Surgeon J. L. Whitaker.

3816. The bones of the left ankle, all fractured and carious, one month after injury.
f. 68. Private E. W. S., "A," 12th Georgia, (Rebel,) 21: Monocacy, Md., 9th July; admitted hospital, Frederick, 10th July; amputated in the lowest third of the leg by Acting Assistant Surgeon Coover, 6th August, 1864. Recovered.

Contributed by Acting Assistant Surgeon J. E. Mitchell.

363. A ligamentous preparation of the left foot, between two and three weeks after injury. The calcaneum was
f. 69. perforated in its posterior portion from above downward. There is some necrosed bone to be seen in the track of the ball.

Private J. W. F., "G," 6th Wisconsin: Antietam, 17th September; amputated in the lowest third by Assistant Surgeon C. Bacon, U. S. Army, 6th October; died, 15th October, 1862.

Contributed by the operator.

4078. The right tarsus, fractured by a conoidal ball on the outer aspect.
f. 70. Captain E. A. C., "A," 95th New York, 31: Boydton Plank Road, Va., 31st March; admitted hospital, Georgetown, 12th April; amputated in the lowest third by Surgeon H. W. Ducachet, U. S. Vols., 16th April; died of pyæmia, 7th May, 1865.

Contributed by Acting Assistant Surgeon G. M. Bradfield.

1696. A portion of the right tarsus, fractured in the scaphoid bone.
f. 71. Private M. S., "D," 13th Vermont, 21: Gettysburg, 3d July; admitted hospital, Baltimore, 12th; amputated in the lowest third of the leg, 19th July, 1863. Recovered.

Contributed by Surgeon C. W. Jones, U. S. Vols.

2713. The right calcaneum, sixteen days after fracture by a conoidal ball. The bone is honeycombed by caries.
f. 72. Private W. W., "E," 63d New York, 34: Cold Harbor, 3d June; admitted hospital, Washington, 7th; amputated lowest third of leg, 19th June, 1864.

Contributor and result unknown.

1847. A ligamentous preparation of parts of the bones of the left leg and foot, six and a half months after injury. The
f. 73. calcaneum was perforated obliquely by a conoidal ball. Much callus has been deposited on the surfaces of the bones, but the track of the missile is not closed.

Private F. S., "A," 6th Maine, 20: Second Fredericksburg, 3d May; admitted hospital, Washington, 6th May; amputated in the lowest third by Surgeon J. A. Lidell, U. S. Vols., 24th November, 1863; discharged, 18th June, 1864.

Contributed by the operator.

4098. Portions of the right tarsus and metatarsus, with the last four metatarsal bones fractured by a conoidal ball.
f. 74. Private L. W., "I," 5th New Hampshire: Petersburg, (?) 6th April; amputated in the lowest third of the leg by Acting Assistant Surgeon C. H. Pegg, Annapolis, 18th; died, 26th April, 1865.

Contributed by the operator.

2572. A part of the bones of the right foot, fractured through the tarsus.
f. 75. Private E. G., "F," 69th New York, 37: Cold Harbor, 3d June; admitted hospital, Washington, 11th; amputated in the lowest third of the leg by Acting Assistant Surgeon A. Ansell, 17th; died of pyæmia, 28th June, 1864.

Contributed by the operator.

3102. The metatarsus of the right foot, three months after injury. A bullet has passed through the base of each bone,
f. 76. except the first. The injured portions are necrosed.

Sergeant J. Q., "K," 169th New York, 21: Drury's Bluff, 16th May; admitted hospital, Washington, from hospital at Point Lookout, 6th August; amputated in lowest third, 19th August, 1864. Recovered.

Contributed by Assistant Surgeon P. C. Davis, U. S. Army.

1611. A ligamentous preparation of the right tarsus, with the outer malleolus fractured, the astragalus denuded and the
f. 77. scaphoid and calcaneum shattered by musket ball. The fractured bones are carious.

Private H. F. D., "F," 12th New Hampshire: probably Gettysburg, 3d July; admitted hospital, Baltimore, 16th July, 1863; amputated in the lowest third. Recovered.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

2489. The bones of the left ankle, apparently amputated in the lowest third of the leg for caries of the astragalus
f. 78. following fracture.

Contributor and history unknown.

4273. The bones of the left foot, with portions of the tarsus and metatarsus fractured by musket ball.
f. 79. Private J. T., "H," 91st Ohio, 32: Winchester, 20th July; admitted hospital, Cumberland, Md., 24th July; amputated in the lowest third of the leg, 6th August; died, 10th August, 1864.

Contributed by Surgeon J. B. Lewis, U. S. Vols.

1668. A ligamentous prepartion of the left ankle and adjacent bones, seven weeks after injury. A musket ball passed
f. 80. transversely through the joint fracturing the astragalus and calcaneum.

Sergeant A. J. S., "I," 72d New York: Gettysburg, 2d July; admitted hospital, Baltimore, 16th July; amputated in the lowest third of leg, 21st August, 1863; discharged the service, 3d July, 1864.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

1651. A ligamentous preparation of the left ankle and adjacent bones, one month after injury. The astragalus is
f. 81. comminuted and necrosed.

Sergeant J. C., "I,' 1st New York Light Artillery, 24: Gettysburg, 2d July; admitted hospital, Baltimore, 16th July; amputated in lowest third, 2d August, 1863; transferred North, 24th April, 1864.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

3429. The bones of the right ankle, three weeks after injury. The astragalus and scaphoid were fractured, and the
f. 82. articular surfaces of the ankle destroyed by the succeeding suppuration.

Corporal H. G., "G," 176th New York, 18: Cedar Creek, Va., 19th October; admitted hospital, Baltimore, 24th October; amputated in the lowest third by Acting Assistant Surgeon B. B. Miles, 7th November; died from exhaustion, 26th November, 1864.

Contributed by the operator.

263. The left tarsus and metatarsus, anchylosed and carious, after comminution by a grape shot passing perpendicularly
f. 83. through the tarsus. About half of the smaller bones of the tarsus and of the metatarsus have disappeared under suppuration. The missile is attached.

Corporal M. McD., 1st Virginia Cavalry (Rebel): Fredericksburg, 13th December, 1862; treated at home with cold water for more than a year; amputated in the lowest third of the leg. Recovered.

Contributed by Acting Assistant Surgeon F. Schafhirt.

See class **XXVII.** B. B. d.

3565. The right calcaneum and astragalus, eroded by suppuration, one month after fracture by a conoidal ball.
f. 84. Corporal J. L., 6th New York Heavy Artillery: wounded, 19th May; admitted hospital, Washington, 28th May; amputated in the lowest third of the leg, 2d July; died, exhausted, 11th July, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

4216. The left astragalus and calcaneum, two and a half months after injury. The calcis was perforated by a bullet
f. 85. and the joint opened. The bones soon became carious and the soft parts gangrenous.

Private H. G. R., "K," 7th Mississippi, (Rebel,) 23: Nashville, 15th December, 1864; amputated lowest third, 1st March; died, 11th March, 1865.

Contributed by Acting Assistant Surgeon D. D. Talbot.

See class **XXIII.** A. B.

326. The bones of the right tarsus and metatarsus, seven weeks after injury. A fragment from the anterior portion of
f. 86. the astragalus is broken off with complete destruction of most of the tarsals. The ankle joint is very slightly involved.

Private R. B., "G," 28th New York: Cedar Mountain, 11th August; amputated in the lowest third of the leg by Acting Assistant Surgeon S. E. Fuller, 27th September, 1862. Recovered.

Contributed by the operator.

4231. A portion of the bones of the left foot and the lower extremities of the tibia and fibula, six months after injury,
f. 87. showing anchylosis of the ankle. The tarsus was shattered by a conoidal ball passing from the dorsal to the plantar surface. The osseous structures are honeycombed and all the articulations anchylosed.

Private J. D., "D," 1st Maine Cavalry, 47: Weldon Railroad, Va., 26th October, (September?); admitted hospital, too much exhausted for an operation, 14th November, 1864; amputated in lowest third, 30th April, 1865.

Contributed by Surgeon O. A. Judson, U. S. Vols.

2062. A ligamentous preparation of the lower extremities of the right leg bones, the tarsus and metatarsus, seven weeks
f. 88. after injury. A conoidal ball shattered the tibia and astragalus and lodged in the metatarsal bone of the great toe. The broken bones are necrosed, but around them callus has been notably effused.

Private J. H. B., "E," 28th North Carolina (Rebel): Gettysburg, 2d July; amputated in the lowest third, Chester, 20th August; died from pyæmia, 20th September, 1863.

Contributed by Acting Assistant Surgeon J. A. Draper.

See class **XXVII.** B. B. d.

2050. A ligamentous preparation of the left ankle, seven weeks after fracture. Callus has been deposited around the
f. 89. extremities of the leg bones and the tarsus has been somewhat destroyed by suppuration.

Private J. G., "C," 10th Louisiana, (Rebel,) 37: Gettysburg, 2d July; amputated in the lowest third, Chester, Penna., 24th August, 1863. Recovered.

Contributed by Acting Assistant Surgeon J. L. Whitaker.

3663. The bones of the left ankle, one month after injury. The external malleolus and upper portion of the astragalus
f. 90. were fractured and are carious. There is no attempt at repair.

Private L. O., "A," 19th Maine: Petersburg, 22d June; leg amputated in the lowest third by Acting Assistant Surgeon F. H. Getchell, Philadelphia, 23d July; died, 28th July, 1864.

Contributed by the operator.

3658. The bones of the left ankle, twenty-five days after injury. The external malleolus was fractured, and the
f. 91. articulation is destroyed by suppuration.

Sergeant H. W., "E," 125th New York: Deep Bottom, Va., 16th August; amputated in the lowest third of the leg, Philadelphia, 10th September; died, 7th December, 1864.

Contributed by Acting Assistant Surgeon G. P. Sargent.

See 3657, **XV.** A. B. f. 40.

3428. The bones of the right ankle, two weeks after injury, with the external malleolus and the articulating surface of
f. 92. the tibia fractured. The articulation has been destroyed by suppuration. Some periosteal inflammation is shown on the shafts of the bones, but there is no attempt at repair.

Private M. F. J., "L," 9th New York Artillery, 17: Cedar Creek, Va., 19th October; admitted hospital, Baltimore, 24th October; amputated in the middle third by Acting Assistant Surgeon J. Neff, 2d November, 1864. Recovered.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

4217. The bones of the left tarsus and metatarsus, fourteen weeks after injury. The inferior extremity of the fibula
f. 93. (which is not preserved) was fractured, opening the joint. The internal and middle cuneiform are wanting. The first metatarsal is obliquely fractured.

Private W. J. C., "D," 24th South Carolina, (Rebel,) 33: Franklin, Tenn., 30th November; admitted hospital, Nashville, 27th December, 1864; amputated in the lowest third of the leg, 17th February; died, 11th March, 1865.

Contributed by Surgeon B. B. Breed, U. S. Vols.

4052. The left ankle, six months after injury. A musket ball passed between the tibia and astragalus. Large quantities
f. 94. of spongy new bone were thrown out around the tibia, but the bodies of the bones were destroyed by suppuration.

Private D. D., "B," 48th Pennsylvania: Wilderness, 6th May; admitted hospital, Washington, 25th May; amputated in the lowest third by Assistant Surgeon A. Delaney, U. S. Vols., 10th November, 1864. Recovered.

Contributed by Surgeon A. F. Sheldon, U. S. Vols.

191. A portion of the left tarsus and the lower extremities of the bones of the leg. The internal malleolus has been
f. 95. fractured and the posterior portion of the calcaneum shattered. Amputation was performed just above the malleoli.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

2826. The bones of the right ankle, three weeks after fracture by gunshot. The lower portion of the tibia is obliquely
f. 96. fractured and necrosed. The fibula is transversely fractured above the malleolus. The articulation is destroyed by suppuration.

Private J. F. T., "K," 20th Michigan, 22: Petersburg, 18th June; amputated by Acting Assistant Surgeon A. F. A. King, 10th July; transferred North, 6th October, 1864.

Contributed by the operator.

43. The lower halves of the bones of the left leg, with portion of the tarsus. The tibia and fibula are shattered just
f. 97. above the malleoli, involving the joint. The tibia presents a slight enlargement, as if from a node, just below the point of amputation.

Corporal G. W. B., "A," 2d Massachusetts: Cedar Mountain, 9th August; admitted hospital, Alexandria, 12th; amputated in middle third by Acting Assistant Surgeon O. F. Scheldt, 15th August, 1862. Died.

Contributed by the operator.

2469. The lower portions of the bones of the left leg. The fibula is fractured just above the malleolus, involving, by a
f. 98. longitudinal fissure, the ankle.

Private H. E., 1st Maine Artillery: wounded, 11th May; admitted hospital, Washington, 28th; leg amputated in the middle third by Acting Assistant Surgeon Nelson, 31st May, 1864.

Contributed by Surgeon G. L. Pancoast, U. S. Vols.

1550. The bones of the right ankle, with the external malleolus and portions of the tibia and astragalus carried away
f. 99. and the joint ulcerated.
—— W.: successfully amputated in middle third of leg.
Contributed by Surgeon R. Thomain, 29th New York.

599. The lowest third of the left tibia, thoroughly shattered by shell, opening the joint. The astragalus is attached.
f. 100. Private J. A., "C," 5th U. S. Artillery, 19: Fredericksburg, 13th December; admitted hospital, Alexandria, 19th; amputated middle third of leg by Surgeon E. Bentley, U. S. Vols.; died, 31st December, 1862.
Contributed by the operator.

762. The lower halves of the bones of the left leg and a portion of the astragalus. The outer malleolus is partially
f. 101. fractured and carious. The remains of the extremity of the tibia, bordered by a trace of callus, are carious, and the surface of the shattered astragalus is spongy. The right shoulder was fractured at the same time.
Private C. S., 57th New York: Antietam, 17th September; amputated in the middle third, Frederick, 3d October; died, 9th October, 1862.
Contributed by Surgeon H. S. Hewit, U. S. Vols.

1250. The bones of the right ankle, with the astragalus and inner malleolus fractured by a ball entering the heel and
f. 102. emerging above the joint. The bones where fractured are carious.
Private J. F., "H," 119th Pennsylvania, 24: Second Fredericksburg, 2d May; admitted hospital, Washington, 8th; amputated middle third, 17th; died, 19th May, 1863.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.

4037. The bones of the left ankle, with the inner portion of the internal malleolus carried away and the posterior portion
f. 103. obliquely fractured.
Corporal W. L. P., "C," 198th Pennsylvania, 21: Dinwiddie C. H., Va., 29th March; amputated at the junction of the lower thirds of the leg by Acting Assistant Surgeon M. J. Munger, Washington, 3d April; transferred to Philadelphia, 24th June, 1865.
Contributed by Surgeon D. W. Bliss, U. S. Vols.

1126. A ligamentous preparation of portions of the bones of the left leg and foot. The external malleolus is shattered,
f. 104. and the outer portion of the astragalus is fractured and the calcaneum roughened by shell. Amputation in the middle third of the leg was probably performed in the second week.
Contributed by Assistant Surgeon C. C. Byrne, U. S. Army.
See 1127, **XXII.** A. B. a. 17.

2311. The lower half of the left tibia, fractured just above the ankle, splintering into the joint and through the lowest
f. 105. third of the bone.
Private J. H., "I," 35th Indiana, 30: Lost Mountain, 21st June; admitted hospital, Chattanooga, 25th; amputated in the middle third, 27th June, 1864. Recovered.
Contributed by Assistant Surgeon C. C. Byrne, U. S. Army.

1544. The lowest thirds of the bones of the right leg. The external malleolus is shattered and the tibia obliquely
f. 106. fractured.
—— S.: amputated in middle third. Recovered.
Contributed by Surgeon R. Thomain, 29th New York.
See class **XXVII.** B. B. d.

3644. The bones of both ankles. A conoidal ball fractured the external malleolus and the astragalus of the left ankle,
f. 107. and then, passing behind the joint, lodged in the right ankle, having shattered the base of the tibia. The right fibula is transversely fractured just above the malleolus, as if by the propagated force. There are traces of periosteal disturbance.
Sergeant P. S., "K," 69th New York: Petersburg, Va.; amputated at junction of lower thirds by Acting Assistant Surgeon J. H. Hutchinson, Philadelphia, 6th September; died, 14th October, 1864.
Contributed by the operator.

687. The bones of the right ankle, necrosed after fracture by grape, amputated in the middle third of the leg.
f. 108. Contributed by Assistant Surgeon J. C. Semple, U. S. Army.

2715. A portion of the left tarsus, with the astragalus, calcaneum and scaphoid fractured and somewhat spongy.
f. 109. Sergeant E. C. P., "K," 12th New Hampshire: amputated in the middle third of the leg, Washington, 30th June; died of chronic diarrhœa, 8th August, 1864.
Contributed by Acting Assistant Surgeon H. C. Dodge.

4097. f. 110. The lower halves of the bones of the right leg. The tibia is perforated two inches above the ankle joint and shattered into it. The fibula is transversely fractured, as though consecutively. Traces of periosteal inflammation cover both bones.

Private J. W., "F," 5th New Hampshire: Farmville, Va., 7th April; amputated by Acting Assistant Surgeon J. Sweet, Annapolis, 20th April; transferred to Baltimore, 26th June, 1865.

Contributed by the operator.

810. f. 111. The left tarsus and metatarsus, with the ankle opened by fracture of astragalus. The scaphoid and calcis also have been broken.

Private S. R. Y., "A," 28th Pennsylvania: Antietam, 17th September; amputated at junction of lower thirds by Assistant Surgeon Charles P. Russell, U. S. Army, Frederick, 5th October, 1862. Recovered.

Contributed by the operator.

2275. f. 112. The bones of the left ankle, with the joint opened by a conoidal ball which slightly fractured the calcaneum and external malleolus.

Second Lieutenant M. McG., "H," 1st United States Sharpshooters (Volunteers): Wilderness, 7th May; admitted hospital, Washington, 16th; amputated in the middle third by Assistant Surgeon J. C. McKee, U. S. Army, 17th; died from pyæmia, 22d May, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

4103. f. 113. The bones of the right ankle, with a conoidal ball lodged in the astragalus, which it has shattered.

Private R. McC., "K," 82d Pennsylvania: Farmville, Va., 7th April; amputated in the middle third by Surgeon B. A. Vanderkieft, U. S. Vols., Annapolis, 17th April; died from dysentery, 3d July, 1865.

Contributed by the operator.

See class **XXVII.** B. B. d.

1633. f. 114. A ligamentous preparation of the bones of the right ankle, with the lower extremity of the tibia shattered, as though perforated from the front by a bullet, just above the astragalus.

Private S. B., "A," 77th Illinois, 25: Vicksburg, 22d May; amputated in the middle third by Assistant Surgeon H. M. Sprague, U. S. Army, 3d June, 1863.

Contributed by the operator.

2034. f. 115. A ligamentous preparation of the right tarsus and lower portions of the bones of the leg, three and a half months after injury. The internal malleolus was shattered and the astragalus broken up by a musket ball. A large deposit of callus holds together all but one of the fragments of the tibia, and attaches this one to the calcis. Excessive suppuration was kept up from the internal carious surface, and gangrene of the foot, from diminished vascularity owing to the entanglement of the artery in the callus, required amputation.

Private J. O'B., "F," 19th U. S. Infantry: Chickamauga, 20th September; a prisoner eleven days; admitted hospital, Chattanooga, early in October; transferred to Murfreesboro', 3d December, 1863; amputated at junction lower thirds by Acting Assistant Surgeon W. E. Whitehead, 8th January, 1864.

Contributed by the operator.

See class **XXIII.** A. C.

62. f. 116. A ligamentous preparation of the left tarsus and metatarsus, showing the astragalus shattered on its anterior surface.

Private C. D., "K," 82d Ohio: Second Bull Run, 29th August; admitted hospital, Georgetown, 1st September; amputated in the middle third by Assistant Surgeon B. A. Clements, U. S. Army, 18th September, 1862.

Contributed by Acting Assistant Surgeon C. W. Currier.

2205. f. 117. The bones of the right ankle, six months after injury. The joint was fractured by a conoidal ball, and is anchylosed, with the bones very carious.

Private F. D., "D," 2d Missouri, 28: Chickamauga, 20th September; admitted hospital, Nashville, 3d December, 1863; amputated in the middle third, in consequence of secondary hæmorrhage following gangrene, 27th March, 1864. Recovered.

Contributed by Medical Cadet C. H. Fisher.

See class **XXIII.** A. B.

2199. f. 118. The bones of the right leg and ankle, two months after injury. The outer malleolus and astragalus were fractured by a conoidal ball, and the specimen shows extensive caries. The tibia exhibits the effect of the gangrene that attacked the leg.

Corporal B. J. A., "I," 105th Ohio, 24: Mission Ridge, 25th November; admitted hospital, Nashville, 3d December, 1863; amputated at the junction of the lower thirds of the thigh, 29th January; died from exhaustion following secondary hæmorrhage, 18th February, 1864.

Contributed by Acting Assistant Surgeon J. Grant.

1184. The right tarsus and lower portion of the tibia, four weeks after injury. The bony injury, which is confined to
f. 119. the internal malleolus, is slight, but the articulation became destroyed by suppuration.

Sergeant H. A., "F," 119th Pennsylvania, 22: Second Fredericksburg, 3d May; admitted hospital, Washington, 8th; amputated in the middle third, 31st May, 1863. Recovered.

Contributed by Surgeon J. H. Baxter, U. S. Vols.

See 1185, **XXII.** A. B. a. 16.

3069. The lower portions of the bones of the right leg, much shattered, one month after injury. Partial necrosis and
f. 120. traces of periosteal inflammation are visible on the shafts.

Private C. McR., "A," 27th Michigan, 34: Wilderness, 6th May; admitted hospital, Washington, 25th May; amputated in the middle third by Surgeon R. B. Bontecou, U. S. Vols, 10th June; died, 18th July, 1864.

Contributed by the operator.

2464. The bones of the right ankle, two and a half weeks after injury. The astragalus was transversely grooved by a
f. 121. conoidal ball, and the resulting suppuration has destroyed the articular surface. A certain amount of post mortem injury to this specimen must not be confounded with the effect of disease.

Private A. L., "I," 24th Michigan: wounded, 24th May; admitted hospital, Washington, 29th May; amputated at the junction of lower thirds by Surgeon G. L. Pancoast, U. S. Vols., 9th June; died, 18th June, 1864.

Contributed by the operator.

2203. The bones of the right ankle, three and a half months after injury. Firm anchylosis has occurred between the
f. 122. astragalus, fractured on the posterior portion, and the tibia. The adjoining articulations have been destroyed.

Private M. B. M., "C," 11th Tennessee, (Rebel,) 22: Mission Ridge, 25th November, 1863; amputated in middle third, Nashville, 10th March; died from pneumonia and diarrhœa, 25th March, 1864.

Contributed by Acting Assistant Surgeon G. P. Hachenburg.

2895. The bones of the left tarsus, three weeks after injury. The joint was fractured by a conoidal ball passing
f. 123. transversely through the astragalus, which is carious, and the consequent suppuration destroyed the articulation.

Private J. G., "A," 1st Vermont Cavalry: Petersburg, 8th July; amputated in middle third by Surgeon N. R. Mosely, U. S. Vols., Washington, 28th July; transferred to Vermont, October, 1864.

Contributed by Acting Assistant Surgeon J. Walsh.

1712. A ligamentous preparation of the left tarsus and metatarsus, with the ankle joint opened in connection with a
f. 124. severe fracture of the calcaneum, eight weeks after injury. A conoidal ball, which has shattered the os calcis at its posterior articulation with the astragalus, lies nearly under the internal malleolus. The calcis is carious and the joint disorganized.

Private J. N. B., "C," 16th Massachusetts: Gettysburg, 3d July; admitted hospital, Baltimore, 16th July; amputated in the middle third by Acting Assistant Surgeon F. Hinkle, 27th August, 1863; discharged, 3d May, 1864.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

See class **XXVII.** B. B. d.

1607. A portion of the bones of the left foot, showing the ankle slightly involved, with a fearful comminution of the
f. 125. body of the tarsus, four weeks after injury. A conoidal ball passing transversely shattered the cuboid and scaphoid, the anterior portion of the astragalus and the border of the os calcis. The ankle joint was opened and its astragular surface eroded. The fractured bones are necrosed.

Sergeant H. W. S., "K," 111th New York, 20: Gettysburg, 2d July; admitted hospital, Baltimore, 15th; amputated in the middle third of the leg, 28th July; died, 7th August, 1863.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

2865. The bones of the right tarsus and extremities of the tibia and fibula, eight weeks after injury. The specimen
f. 126. does not show any bony fracture, but the articular surfaces are destroyed and the osseous structures carious, as the result of suppurative inflammation.

Private W. S., "D," 17th U. S. Infantry, 22: Wilderness, 12th May; admitted hospital, Washington, 18th May; amputated at the junction of the lower thirds, 8th July; died, 20th July, 1864.

Contributed by Assistant Surgeon Alex. Ingram, U. S. Army.

See class **XVI.** A. B. c.

770. A ligamentous preparation of the left tarsus and metatarsus, three weeks after fracture. The astragalus and
f. 127. calcis are comminuted and necrosed.

Private C. F. C., 7th Maine: Antietam, 17th September; amputated in the middle third by Assistant Surgeon Searle, 26th New York, Frederick, 11th October: died from pyæmia, 23d October, 1862.

Contributed by the operator.

4229. The bones of the left tarsus, five weeks after fracture of the anterior inferior portion of the calcaneum by a conoidal
f. 128. ball. The articulation is completely destroyed, and a trivial amount of callus on the fibula is the only indication of repair.

Corporal J. W. P., "C," 1st Michigan Sharpshooters, 22: Weldon Railroad, 30th September; admitted hospital, Washington, 5th October; amputated in middle third, 4th November, 1864. Recovered.

Contributed by Surgeon O. A. Judson, U. S. Vols.

See class **XXVII.** B. B. d.

1352. A ligamentous preparation of the lower halves of the right leg bones, the tarsus and metatarsus, five weeks after
f. 129. fracture of the ankle by a carbine ball. The astragalus was shattered and the articular surfaces destroyed by profuse suppuration.

Corporal H. S., "B," 8th New York Cavalry, 25: Beverly Ford, Va., 9th June; amputated in middle third of leg, Washington, 13th July, 1863; discharged the service, 2d September, 1864.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

3341. The bones of the right ankle, ten weeks after injury. A conoidal ball pierced the tibia and fibula at the
f. 130. articulation. A very large amount of callus has been thrown out, thoroughly anchylosing the joint. The track of the ball is carious.

Private M. S., "H," 7th Wisconsin: 5th May; admitted hospital, Alexandria, 14th June; amputated at the junction of the lower thirds by Surgeon E. Bentley, U. S. Vols., 12th July, 1864.

Contributed by the operator.

797. The lower halves of the bones of the left leg, two months after comminution of the ankle. The lower extremity of
f. 131. the tibia is destroyed and that of the fibula much eroded by suppuration.

Private D. D. W., "I," 39th New York: admitted hospital, Alexandria, 28th September; amputated by Assistant Surgeon J. B. Brinton, U. S. Army, 1st December, 1862.

Contributed by Acting Assistant Surgeon J. A. McArthur.

2354. The bones of the left ankle, very carious, three weeks after injury.
f. 132. Private C. H. P., "G," 39th Massachusetts, 18: Wilderness, 5th May; admitted hospital, Washington, and amputated in the middle third by Surgeon D. W. Bliss, U. S. Vols, 26th May, 1864.

Contributed by the operator.

3607. The right ankle, thirteen and a half months after injury. The ball entered six inches above the ankle and, passing
f. 133. downward and inward, escaped at the point of the heel. Very profuse new-bone formations have occurred, enveloping the fractured portions, but the path of the missile is perfectly carious and greatly enlarged by suppuration.

Private J. C. C., "B," 43d Ohio, 43: Missionary Ridge, 23d November, 1863; admitted hospital, Columbus, Ohio, 13th December, 1864; amputated at the junction of the lower thirds by Assistant Surgeon Geo. M. Sternberg, U. S. Army, 7th January, 1865. Recovered.

Contributed by the operator.

2415. The right astragalus and lower halves of the bones of the leg, fifteen months after fracture by a conoidal ball
f. 134. grooving the three bones. The specimen shows a hyperostosed condition of the tibia, a similar condition, in a less degree, of the fibula, partial anchylosis of the joint and caries in the track of the bullet.

Private J. G., "C," 15th West Virginia, 23: Winchester, 24th July; erysipelas involved the entire limb, October, 1864, and continued until July, 1865; amputated in the middle third by Brevet Major George M. McGill, Assistant Surgeon, U. S. Army, Baltimore, 12th October; "nearly recovered," 1st December, 1865.

Contributed by Surgeon Thomas Sim, U. S. Vols.

See 455, **XXV.** A. B. b. 224.

See class **XXIII.** A. B.

226. The bones of the right ankle, three weeks after injury. A bullet struck the tibia from the front, perforated it,
f. 135. producing longitudinal fissures, and shattered the joint.

Private J. D. C., "D," 4th New York Artillery, 24: near Petersburg, about 1st April; admitted hospital, Washington; amputated in the middle third of the leg by Assistant Surgeon W. F. Norris, U. S. Army, 23d April; died of pyæmia, 7th May, 1865.

Contributed by the operator.

791. The left tarsus, with the cuboid, astragalus and calcaneum shattered by a ball passing from front to rear.
f. 136. Private P. S., 6th Wisconsin, 23: South Mountain, 14th September; amputated middle third, 30th September; attacked with hospital gangrene, 7th December, 1862.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

See class **XXIII.** A. B.

3536. The right tarsus and metatarsus, with the scaphoid bone fractured by gunshot. Very little callus has been thrown
f. 137. out, nor is there much caries, although the suppuration is described as copious.

Corporal L. M. C., "M," 13th Pennsylvania Cavalry: Malvern Hill, Va., 14th August; admitted hospital, 17th August; amputated in the middle third by Surgeon A. F. Sheldon, U. S. Vols., 23d December, 1864; discharged, 24th June, 1865.

Contributed by the operator.

2833. The left tarsus and metatarsus, with the anterior half of the os calcis carried away by a musket ball.
f. 138. Private V. K., "H," 47th New York: Petersburg, 19th June; admitted hospital, Alexandria, 3d July; amputated middle third by Surgeon E. Bentley, U. S. Vols., 5th July, 1864; still under treatment, Albany, New York, 30th September, 1865.

Contributed by Acting Assistant Surgeon G. A. Riecker.

1222. A portion of the left foot, showing the posterior tarsus shattered, twenty-five days after injury. From this specimen,
f. 139. which does not extend beyond the bases of the metatarsal bones, the soft parts have not been removed, but are presented in a dried condition. The shattered calcaneum is carious.

Sergeant S. McG., "G," 11th Pennsylvania Reserves: Wilderness, 6th May; admitted hospital, Washington, 14th; amputated in the middle third, 31st May, 1864. Recovered.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

1345. The bones of the right ankle, with the external malleolus contused and split off by a spent ball. The articulating
f. 140. surfaces have been destroyed by suppuration.

Private W. Y., "G," 8th Illinois Cavalry, 29: Beverly Ford, Va., 9th June; admitted hospital, Washington, 10th June; amputated in the middle third, 10th July; died, 20th July, 1863.

Contributed by Acting Assistant Surgeon D. Weisel.

See class **XVI.** A. B. a.

3258. The bones of the left foot, six weeks after injury. The middle cuneiform and scaphoid were fractured. The bases
f. 141. of the metatarsal bones show periosteal inflammation.

Private M. S., "A," 1st Minnesota Battery, 42: Deep Bottom, Va., 14th August; admitted hospital, Washington, 17th August; amputated in the middle third of the leg by Surgeon A. F. Sheldon, U. S. Vols., 24th September, 1864.

Contributed by the operator.

1135. The astragalus and portions of the os calcis of the right foot. The calcaneum is shattered by a conoidal ball.
f. 142. Private J. L., "C," 2d Rhode Island: Second Fredericksburg, 3d May; admitted hospital, Washington; amputated at junction of lower thirds by Surgeon J. H. Baxter, U. S. Vols., 20th May, 1863. Recovered.

Contributed by the operator.

2429. Portions of the right os calcis and cuboid, three weeks after injury. The specimen exhibits a fragment of the
f. 143. calcaneum that had been broken off, partially united nearly in apposition.

Captain N. M. B., "C," 12th New Jersey, 22: Wilderness, 12th May; admitted hospital, Washington, 25th May; amputated in the middle third by Surgeon D. W. Bliss, U. S. Vols., 3d June, 1864. Recovered.

Contributed by the operator.

1450. A portion of the bones of the left foot, with the tarsus shattered by a conoidal ball.
f. 144. Private T. F. K., "B," 73d New York, 20: Gettysburg, 2d July; amputated at the junction of the lower thirds, Baltimore, 12th July, 1863.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

3352. The left calcis, five weeks after injury. The bone has been completely fractured and a small deposit of callus
f. 145. has formed. Caries has followed where comminution occurred.

Private L. G., "K," 11th Pennsylvania: Cold Harbor, 3d June; admitted hospital, Alexandria, 7th June; amputated in middle third, for necrosis following gangrene, by Surgeon E. Bentley, U. S. Vols., 8th July; died, 16th July, 1864.

Contributed by the operator.

3475. The left astragalus and calcaneum, four weeks after injury by a conoidal ball. The calcis is completely shattered
f. 146. and its articulation with the astragalus eroded. No attempt at repair. The battered missile is attached.

Private A. D. G., "K," 8th Vermont, 21: Cedar Creek, Va., 19th October; admitted hospital, Baltimore, 25th October; amputated in middle third by Acting Assistant Surgeon A. W. Emory, 13th November, 1864. Recovered.

Contributed by Surgeon Thomas Sim, U. S. Vols.

See class **XXVII.** B. B. d.

3533. The left astragalus and portions of the tibia and fibula, three weeks after injury. The lower portion of the
f. 147. fibula, which was probably fractured, is wanting. The articulation has been destroyed by suppuration.

Private J. K., "I," 15th Pennsylvania: Wilderness, 5th May; admitted hospital, Washington, 26th; amputated in the middle third, 29th May, 1864. Recovered.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

2710. The scaphoid and three cuneiform bones of the left tarsus, fractured on the inner surface and carious.
f. 148. Private E. W. B., "H," 45th Pennsylvania, 16: Cold Harbor, 3d June; admitted hospital, Alexandria, 7th; amputated in the middle third of the leg for tetanus by Surgeon E. Bentley, U. S. Vols., 16th; died from tetanus, 20th June, 1864.

Contributed by the operator.

3432. The left tarsus and metatarsus. The base of the fifth metatarsal bone was fractured. The surfaces of the tarsal
f. 149. bones are necrosed.

Private C. McA., "G," 106th New York, 38: admitted hospital, Baltimore, 31st August; amputated in upper third of leg by Acting Assistant Surgeon C. H. Jones, 21st September, 1864. Recovered.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

2312. The left tibia, fibula and astragalus, shattered by the transverse passage of a conoidal ball.
f. 150. Private J. B., "B," 5th North Carolina (Rebel): Wilderness, 12th May; admitted hospital, Washington, 17th; amputated five inches below the knee, 20th May; transferred to prison, 24th September, 1864.

Contributed by Surgeon D. W. Bliss.

2071. The bones of the right ankle, an unknown time after injury. The lower extremity of the tibia is carried away
f. 151. and the astragalus eroded by suppuration.

Private S. S. K., "G," 13th North Carolina (Rebel): Gettysburg, 1st July, 1863; amputated in upper third of leg, Chester, Penna. Recovered.

Contributed by Acting Assistant Surgeon G. Martin.

3503. The two lower thirds of the left tibia, perforated an inch above with a fracture extending into the ankle joint.
f. 152. The traces of incipient necrosis are visible.

Private D. L., "K," 5th Tennessee, 24: Resaca, Ga., 15th May; amputated, Nashville, 1st June; died from pyæmia, 10th June, 1864.

Contributed by Acting Assistant Surgeon M. L. Herr.

3678. The lower extremities of the bones of the left leg and a portion of the tarsus, eleven weeks after injury. The
f. 153. external malleolus is fractured, and the astragalus and posterior portion of the calcaneum are badly broken. The specimen is spongy with caries.

Private E. W., "A," 93d Pennsylvania: Wilderness, 5th May; admitted hospital, Philadelphia, 16th May; amputated in the upper third of the leg by Acting Assistant Surgeon E. Hartshorne, 23d July, 1864. Recovered.

Contributed by Acting Assistant Surgeon H. B. Buehler.

1273. The left tarsus and bones of the leg, amputated in the upper third for secondary hæmorrhage. The joint was
f. 154. traversed transversely by a musket shot, and the specimen shows the articulation entirely destroyed by suppuration following fracture. A trivial deposit of callus has been provoked about the extremities of the tibia and fibula.

Private M. K., "D," 75th Pennsylvania, 50: wounded, 6th May; admitted hospital, Washington, 15th; amputated for hæmorrhage from posterior tibial, 18th May, 1863; discharged the service, 15th June, 1864.

Contributed by Surgeon H Bryant, U. S. Vols.

2052. A ligamentous preparation of the right tarsus and metatarsus and the lower portions of the tibia and fibula, three
f. 155. weeks after injury. The external malleolus has been fractured and parts of the tibia and astragalus chipped.

Private J. W., "G," 1st Texas, (Rebel,) 30: Gettysburg, 1st July; admitted hospital, Chester, Penna, 9th; amputated in upper third, 23d July, 1863. Recovered.

Contributed by Assistant Surgeon B. Stone, U. S. Vols.

741. A ligamentous preparation of the left tarsus and metatarsus, fractured in the tarsus by a round ball. The missile
f. 156. and portions of the astragalus and scaphoid were removed eight days after injury. Limb amputated below the knee.

Private J. G., 3d Wisconsin: Antietam, 17th September; amputated, Frederick, 4th October, 1862. Recovered.

Contributed by Assistant Surgeon A. H. Smith, U. S. Army.

1648. A ligamentous preparation of the left tarsus and metatarsus, one month after injury. The calcaneum, cuboid,
f. 157. external cuneiform, head of the fifth metatarsal and lower extremity of the fibula were shattered, as if by a conoidal ball passing downward, forward and inward. The fibula does not appear in this specimen.

Sergeant C. M., "D," 42d New York: Gettysburg, 1st July; admitted hospital, Baltimore, 9th July; amputated below the tuberosity of the tibia, 1st August, 1863

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

1237. The two lower thirds of the bones of the left leg, the calcaneum and astragalus. The tibia and fibula are
f. **158.** shattered just above the malleoli, involving the joint. The broken bones are partly necrosed, with no attempt at union.

Sergeant J. O'C., "C," 11th Massachusetts: probably Chancellorsville, 3d May; amputated in the upper third, Washington, 16th June, 1863.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

744. The bones of the left leg, one month after injury. The tibia was struck, about four inches above the joint, by a
f. **159.** round ball which shattered the bone and then, passing down the medullary canal, escaped through the ankle. The fibula was transversely fractured.

Private J. M., "G," 4th New York: Antietam, 17th September; amputated below the knee by Acting Assistant Surgeon J. H. Peabody, Frederick, 12th October, 1862. Recovered.

Contributed by the operator.

3126. The left tarsus and metatarsus, showing a fracture of the ankle. The astragalus is partially fractured by a
f. **160.** fragment of shell which destroyed the internal malleolus.

Private S. C., "G," 17th Michigan, 18: Petersburg, 31st July; admitted hospital, Washington, 30th August; amputated in upper third of leg by Surgeon A. F. Sheldon, U. S. Vols., 1st September; died from exhaustion, 15th September, 1864.

Contributed by the operator.

254. A ligamentous preparation of the right tarsus, metatarsus and lower portions of the bones of the leg, seven
f. **161.** weeks after injury. The tibia and fibula were grazed on their posterior surfaces just above the articulation.

Amputation became necessary from the reduction of the system by irritation. The subject received four other wounds (not serious) in the same battle.

Supposed to be the case of Private W. B., "I," 7th Michigan: Antietam, 17th September; admitted hospital, Washington, 26th September; amputated below the knee by Surgeon John O. Bronson, U. S. Vols., 3d November, 1862. Recovered.

Contributed by the operator.

1609. A ligamentous preparation of the tarsus and metatarsus, three weeks after injury. The anterior portion of the
f. **162.** extremity of the tibia, including the inner malleolus, has been grooved by a conoidal bullet. There is no attempt at repair. This subject suffered a fracture of the right ankle at the same time.

Private M. Y., "E," 120th New York, 20: Gettysburg, 2d July; admitted hospital, Baltimore, 16th; foot became gangrenous and leg was amputated at the tuberosity of the tibia by Acting Assistant Surgeon F. Hinkle, 27th July; the right leg was amputated the next day; died, 9th August, 1863.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

See 1605, **XVI.** A. B. f. 27.

53. The right tarsus and portions of the metatarsus and tibia and fibula. The three cuneiform bones and the base of
f. **163.** the third metatarsal are fractured by shell. The tibia also was fractured by the same missile two inches above the joint.

Private E. P., 6th Maine Battery, 19: Cedar Mountain, 9th August; admitted hospital, Alexandria, 12th; amputated at the knee joint, leaving the patella, by Surgeon E. Bentley, U. S. Vols., 14th August; discharged, 28th October, 1862.

Contributed by Surgeon J. E. Summers, U. S. Army.

See class **XIV.** A. B. e.

2655. The lower extremities of the bones of the right leg, with the inner malleolus badly fractured.
f. **164.** Private A. F., "I," 83d New York, 51: Wilderness, 9th May; amputated at knee joint by Surgeon E. Bentley, U. S. Vols., Alexandria, 15th May; died from pyæmia, 1st June, 1864.

Contributed by the operator.

See class **XIV.** A. B. e.

3740. The left fibula, transversely fractured and the tibia shattered, three inches above the ankle, by a large conoidal
f. **165.** pistol ball. The tibia is fissured into the joint.

Corporal C. H. B., "F," 49th Indiana: New Orleans, 14th October; amputated in the lowest third of the thigh, for erysipelas and purulent infiltration of the knee, by Surgeon S. Kneeland, U. S. Vols., and died in three hours, 20th October, 1864.

Contributed by the operator.

See classes **XIV.** A. B. c.; **XXIII.** A. A.; **XXVII.** B. B. d.

3522. The lower extremities of the bones of the left leg, with the outer malleolus shattered.
f. 166. Private W. H. H., "K," 39th Massachusetts: Wilderness, 10th May; admitted hospital, Washington, 14th; amputated above the knee for secondary hæmorrhage, 18th; died from exhaustion following secondary hæmorrhage, 31st May, 1864.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.

1702. The lower extremities of the right leg bones, one month after injury. The inner malleolus was partially fractured
f. 167. by a conoidal ball and the articulating surface of the tibia fissured. A small fringe of callus borders the fracture.
Private W. C. K., "G," 68th Ohio, 46: Vicksburg, 22d May; admitted hospital, Memphis, 13th June; refused to allow an operation until, from erysipelas, amputation was performed above the knee by Acting Assistant Surgeon J. Thompson, 24th June; died, 11th July, 1863.
Contributed by the operator.
See class **XXIII.** A. A.

2064. A ligamentous prepartion of the left tarsus and metatarsus, one month after injury. The external malleolus has
f. 168. been carried away and the articulation is destroyed by suppuration.
Private W. A. W., "H," 1st Virginia, (Rebel,) 33: Gettysburg, 3d July; amputated at knee joint, Chester, Penna., 8th August; died, exhausted, 12th August, 1863.
Contributed by Acting Assistant Surgeon A. A. Griffith.
See class **XIV.** A. B. e.

2428. The lower extremity of the right tibia, fractured on the anterior surface by a conoidal ball that opened the joint.
f. 169. Private J. R. G., "A," 7th West Virginia, 38: Spottsylvania C. H., 12th May; admitted hospital, Washington, 25th May; amputated in the lowest third by Surgeon D. W. Bliss, U. S. Vols., 4th June, 1864. Recovered.
Contributed by the operator.

1669. A ligamentous preparation of the right tarsus and metatarsus, with a fracture of the anterior portion of the
f. 170. astragalus, six weeks after injury.
Corporal J. G. W., "H," 62d Pennsylvania, 19: Gettysburg, 2d July; admitted hospital, Baltimore, 13th July; leg amputated, 14th August; discharged the service, 16th December, 1863.
Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

167. The bones of the right tarsus, five weeks after injury. The scaphoid and astragalus were slightly injured by a
f. 171. conoidal ball, which was extracted on the fifth day. Violent succeeding suppuration destroyed the articulation, as seen in the specimen.
Private H. H. B., "E," 11th Pennsylvania: Second Bull Run, 30th August; admitted hospital, Washington, 1st September; amputated in the lowest third, by Teale's method, 5th October, 1862. Sloughing of the long flap required reamputation. Recovered.
Contributed by Assistant Surgeon C. A McCall, U. S. Army.

54. The bones of the left ankle, with the joint opened by a fissure from the lower extremity of the tibia, which is badly
f. 172. shattered by a conoidal ball.
Private R. P. D., "D," 3d Wisconsin: Cedar Mountain, Va., 9th August; admitted hospital, Alexandria, 14th; amputated in the middle third by Acting Assistant Surgeon S. E. Fuller, 17th August; discharged the service, 29th October, 1862.
Contributed by the operator.

1385. The left os calcis, transversely fractured by a conoidal ball which entered from within.
f. 173. Sergeant J. P. B., "I," 5th Pennsylvania Reserves, 23: Fredericksburg, 13th December; leg amputated in lowest third by Assistant Surgeon Weisel, Washington, 28th December, 1862. Recovered and discharged.
Contributed by the operator.

2649. The lowest thirds of the bones of the right leg, amputated for moderate fracture of both bones on the anterior
f. 174. surface just above the articulation.
Private J. L, "L," 4th New York Heavy Artillery: Petersburg, 19th June; amputated by Surgeon Wm. Watson, 105th Pennsylvania.
Contributed by the operator.

2775. The bones of the left ankle. The inner malleolus and the adjoining portion of the astragalus are partially fractured.
f. 175. Private P. D., "B," 170th New York, 23: Petersburg, 16th June; amputated by Dr. A. Garcelon, in the field, 20th June, 1864. Recovered.
Contributed by the operator.

4541. A ligamentous preparation of the right tarsus and lower portions of the leg bones. The anterior part of the
f. 176. calcaneum, the astragalus and cuboid are fractured by the transverse passage of a bullet.

Corporal M. B., "F," 7th Pennsylvania Reserves, 21: Fredericksburg, 13th December; admitted hospital, Alexandria, 19th; amputated at the knee joint by Surgeon E. Bentley, U. S. Vols., 26th December, 1862; femoral ligated for secondary hæmorrhage, 7th January; died, 12th January, 1863.

Contributed by the operator.

See class **XIV.** A. B. e.

483. A ligamentous preparation of the left tarsus and metatarsus and lower portions of the bones of the leg, showing
f. 177. anchylosis of the ankle from abscess following gunshot of the thigh ten months previously. The astragalus is fractured transversely in the specimen, the evident result of violence after the operation.

Farrier J. H. A., "I," 21st Pennsylvania Cavalry, 19: Amelia C. H., Va., 5th April; admitted hospital, Baltimore, 21st July, 1866; amputated, with periosteum flaps, by Acting Assistant Surgeon H. McElderry; discharged the service, 14th March, 1866

Contributed by Assistant Surgeon G. M. McGill, U. S. Army.

See 477, **XIV.** A. B. f. 36; 403, **XXV.** A. B. b. 157.

See class **XVI.** A. B. c.

817. The lower extremities of the left tibia and fibula and the greater portion of the astragalus. The posterior portions
f. 178. of the tibia and astragalus are fractured, and the amputation, which is reported as a modification of Syme's, was performed just above the articulation.

Corporal T. J. H., company and regiment unknown: probably wounded before Richmond, June; amputated, Baltimore, 30th July, 1862.

Contributed by Surgeon L. Quick, U. S. Vols.

See **XVI.** D.

818. The astragalus and lower portions of the bones of the left leg. Both of the long bones have been partially
f. 179. fractured on their posterior surfaces, at the articulation, by a conoidal ball. In the tibia there is an oblique fracture on the posterior surface for three inches.

Corporal G. T., "I," 7th New York Artillery, 27: Petersburg, 11th June; amputated by Surgeon William Watson, U. S. Vols., 25th; admitted hospital, Alexandria, 28th June, 1864; discharged the service, 15th July, 1865.

Contributed by the operator.

3204. The bones of the left tarsus, with the astragalus contused on its anterior border by a conoidal ball, which is
f. 180. singularly flattened after the infliction of comparatively so slight an injury.

Private W. S., "I," 8th New York Heavy Artillery, 21: Cold Harbor, 3d June; amputated in the middle third of the leg by Surgeon F. F. Burmeister, 69th Penna.; secondary hæmorrhage, 13th June; died, 12th July, 1864.

Contributed by the operator.

See classes **XVI.** A. B. f.; **XXVII.** B. B. d.

97. The bones of the left foot. All the metatarsals and all the tarsals, except the astragalus, have been fractured,
f. 181. as if by a conoidal ball passing from within outward.

Private W. M., "A," 72d Pennsylvania: Antietam, 17th September; amputated in the lowest third of the leg by Acting Assistant Surgeon P. Middleton, Washington, 28th September, 1862. Recovered.

Contributed by the operator.

61. A ligamentous preparation of the right foot and two lower thirds of the bones of the leg. The inner malleolus has
f. 182. been carried away and the lowest fourth of the tibia comminuted with oblique splintering. The inner half of the astragalus is shattered.

Private A. B., "E," 25th New York: Second Bull Run, 30th August; admitted hospital, Washington, 7th September; amputated in the upper third by Acting Assistant Surgeon Wm. Eddy, 10th September; died, 12th October, 1862.

Contributed by the operator.

943. The lower portions of the bones of the left leg, with the articular surfaces carious, after fracture of the tibia by the
f. 183. passage of a bullet from the front directly through the articulation.

Private W. M., "K," 81st Pennsylvania: probably Fredericksburg, 13th December; admitted hospital, Washington, 28th December, 1862; amputated in the middle third of the leg; transferred to another hospital, 17th April, 1863.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

For other illustrations, see 1974, **XIV.** A. B c. 6; 4327, **XV.** A. B. f. 13; 4328, **XV.** A. B. f. 15; 2454, **XV.** A. B. f. 16; 3155, **XV.** A. B. f. 17; 2212, **XV.** A. B. f. 24; 3883, **XV.** A. B. f. 37; 3668, **XXII.** A. B. c. 14; 1899, **XXII.** A. B. c. 15; 1034, **XXII.** A. B. c. 16; 1036, **XXII.** A. B. c. 17; 1731, **XXII.** A. B. c. 18.

g. Other Operations.

424. Twenty small fragments of necrosed bone, removed from the left tarsus seven weeks after gunshot.
g. 1. Private J. H. N., "A," 20th Massachusetts, 32: White Oak Swamp, Va., 30th June; admitted hospital, Baltimore, 21st July; specimen removed by Surgeon A. B. Hasson, U. S. Army, 20th August, 1862.
Contributed by the operator.

785. Fragments of the astragalus and scaphoid, with a flattened round bullet removed from the fractured tarsus.
g. 2. Private J. G., 3d Wisconsin: Antietam, 17th September; specimen removed, Frederick, 25th September; amputated below the knee, 4th October, 1862. Recovered.
Contributed by Assistant Surgeon A. H. Smith, U. S. Army.
See class **XXVII.** B. b. d.

h. Stumps.

1706. A Syme's stump, one month after operation. The extremities are necrosed, and no repara-
h. 1. tive action has occurred.
Private F. W. B., "D," 23d Iowa: foot wounded and Syme's amputation performed, Black River, Miss., 19th May; admitted hospital, Memphis, 13th June; reamputation at the junction of upper thirds of leg by Acting Assistant Surgeon J. Thompson, 17th June; reamputation on account of sloughing in the lowest third of thigh, 2d July; died, exhausted, following gangrene, 16th July, 1863.
Contributed by Surgeon J. G. Keenon, U. S. Vols.
See classes **XVI.** D.; **XXIII.** A. b.

2281. The right tibia, being a stump, two weeks after amputation at the ankle, by Syme's method,
h. 2. for comminuted fracture of the tarsus. The extremity is somewhat eroded.
Private H. H. J., "A," 9th New York Heavy Artillery, 18: Monocacy, 9th July; admitted hospital, Frederick, 10th; amputated by Assistant Surgeon R. F. Weir, U. S Army, 12th; died from exhaustion following erysipelas, 28th July, 1864.
Contributed by the operator.
See classes **XVI.** D.; **XXIII.** A. a.

214. The lower halves of the bones of the left leg and the posterior portion of the calcaneum,
h. 3. being a Pirogoff stump, nearly two months after operation. The cut extremities of the tibia and calcis are carious, and no union whatever has occurred. The lower extremity of the fibula is carious and the upper portion of the shaft is necrosed. The shaft is enlarged by attempts at an involucrum from the periosteum. *See figure* 139.
Private J. L., "K," 67th New York, 22: tarsus, Malvern Hill, 2d July; a prisoner three weeks; Pirogoff's amputation made, 26th July; admitted hospital, Philadelphia, the same day; amputated, by flaps, for sloughing after erysipelas, by Acting Assistant Surgeon S. D. Gross, 16th September, 1862; discharged the service, 31st July, 1863.
Contributed by the second operator.
See classes **XVI.** D.; **XXIII.** A. a.

FIG. 139. Bones of left leg, two months after a Pirogoff amputation. *Spec.* 214.

B. Injuries not caused by Gunshot.

A. Primary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Dislocations.
- d. Excisions.
- e. Amputations in the tarsus.
- f. Amputations in the leg or thigh.
- g. Other operations.

b. Complete Fractures.

See 493, **XVI.** A. B. b. 7.

f. Amputations in the Leg or Thigh.

1844. The right tibia, crushed above the ankle, and the external malleolus fractured by a railroad accident.
f. 1. P. D., civilian, 18: Alexandria, Va., 14th September, 1863; both legs amputated below the knee; sent home, 24th January, 1864.
Contributed by Acting Assistant Surgeon Stillwell.

1704. The lowest thirds of the bones of the left leg, one month after injury. Both bones are fractured by a railroad
f. 2. accident, and the tibia is split into the ankle. The parts next the lines of fracture are denuded of periosteum and necrosed.
Private J. U., "I," 103d Illinois, 24: railroad, 6th June; admitted hospital, Memphis, 1st July; amputated just below the knee by Acting Assistant Surgeon J. Thompson, 2d July, 1863.
Contributed by the operator.

3676. A portion of the bones of the left lower extremity, amputated in the lowest third for comminution of the astragalus
f. 3. and lower borders of the tibia and fibula by the wheel of a railroad car. The fibula is also transversely fractured about two inches above the ankle.
Private J. S., "B," 51st New York: injured, and amputated, on account of hæmorrhage, by Acting Assistant Surgeon L. Curtis, Philadelphia, 4th October, 1864.
Contributed by Surgeon Lewis Taylor, U. S. Army.

251. A ligamentous preparation of the calcaneum, astragalus, scaphoid and cuboid of the left tarsus, the remaining
f. 4. bones of which were crushed by a car wheel.
Private H. D., "D," 50th Pennsylvania, 17: injured, and amputated in the lowest third of the leg, Chester, 15th August, 1864. Recovered.
Contributed by Brevet Lieutenant Colonel Thomas H. Bache, Surgeon, U. S. Vols.

930. The lower halves of the bones of the left leg. There is a fracture of the inner malleolus and a Pott's fracture of
f. 5. the fibula. There is no known history to this specimen, but the injury appears to have been caused by the passage of a heavy wheel over the ankle, and to have been followed by a primary amputation in the middle third. Near the line of section are evidences of an old contusion of the fibula.
J. T. N.
Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.
See class **XVI.** B. B. a.

For other illustrations, see 4204, **XXII.** B. A. c. 2.

B. Secondary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Dislocations.
- d. Caries consecutive upon other injury than fracture of the bones of the joint.
- e. Excisions.
- f. Amputations in the tarsus.
- g. Amputations.
- h. Other operations.
- i. Stumps.
- k. Sequestra.

a. Contusions and Partial Fractures.

For illustrations, see 930, **XVI.** B. A. f. 5; 1839, **XVI.** B. B. g. 3.

g. Amputations.

781. g. 1. A portion of the right lower extremity, amputated two inches above the malleoli. The plantar portions of the scaphoid and three cuneiform bones are fractured, but the dorsal surfaces exhibit no injury.

Private D. M., 145th New York: railroad car passed over the foot, Frederick, 7th October; amputated, 19th October; died, 24th October, 1862.

Contributed by Assistant Surgeon G. L. Porter, U. S. Army.

2422. g. 2. The bones of the right ankle, seven months after injury. The tibia was fractured above the ankle by a heavy timber falling upon it. The specimen shows the articulation utterly destroyed. The tibia and fibula have been united by spongy callus above the malleoli, and the astragalus and calcaneum are honeycombed by caries.

Private J. M. S., "M," 1st Illinois Artillery, 24: injured, 26th October, 1863; admitted hospital, Madison, Wisconsin, 18th May; amputated at the point of election by Surgeon H. Culbertson, U. S. Vols., 22d May; discharged the service, 28th December, 1864.

Contributed by the operator.

1839. g. 3. The bones of the left tarsus and metatarsus, with the lower halves of the tibia and fibula. The bones of the ankle are eroded by ulceration.

Private D. B., "F," 12th Pennsylvania Cavalry, 17: ankle contused by a fall from his horse; admitted hospital, Frederick, 17th July; amputated in the middle third, for extensive subfascial abscesses and caries, 6th August, 1864; died in a few hours.

Contributed by Acting Assistant Surgeon A. R. Gray.

See class **XVI.** B. B. a.

2982. g. 4. A wet preparation of the right ankle, after amputation in the middle third of the leg for scrofulous inflammation of the joint following a sprain. The articulation between the astragalus and calcaneum is carious.

F. S., colored, 34: amputated by Surgeon R. Reyburn, U. S. Vols., more than a year after the sprain, 3d October; died, 29th October, 1866.

Contributed by Assistant Surgeon P. Glennan, U. S. Vols.

C. Diseases and Deformities.

886. C. 1. A wet preparation of the right foot, being a well-marked case of talipes varus complicated with equineus. The heel is drawn up and outwardly and the whole of the anterior portion is turned inwardly.

A. B., colored, 23: died in hospital, Washington, 20th November, 1866.

Contributed by Hospital Steward A. M. Squier, U. S. Army.

See 854, **XVI.** C. 2, *from the same case.*

854. C. 2. A ligamentous preparation of the bones of the left foot and the lower portions of the bones of the leg, from a case of greatly exaggerated club foot. The foot is turned directly inward toward its fellow and is completely inverted, the plantar surface looking upward. The calcis, which is small, is nearly parallel with the shafts of the leg bones, and presents on its outer side two marked grooves, as if for the passage of the long flexor tendons. Locomotion occurred chiefly upon the anterior surfaces of the calcaneum and the astragalus and the dorsal surfaces of the other tarsal bones. The metatarsals are of marked slenderness. The great toe is drawn across the second one.

A. B., colored, 23: died in hospital, Washington, 20th November, 1866.

Contributed by Hospital Steward A. M. Squier, U. S. Army.

See 886, **XVI.** C. 1, *from the same case.*

D. List of Cases illustrating Special Amputations in the Tarsus.

Hey's or Lisfranc's Metatarso-tarsal.

1121, **XVI.** A. A. d. 1; 2777, **XXI.** B. B. b. 3; 3197, **XXV.** A. B. b. 236.

Chopart's.

1650, **XVI.** A. B. e. 2; 3007, **XVI.** A. B. e. 4; 4493, **XVI.** A. B. e. 5; 2857, **XXV.** A. B. b. 231; 1530, **XXV.** A. B. b. 232.

Pirogoff's.

540, **XVI.** A. B. e. 1; 2028, **XVI.** A. B. e. 3; 2983, **XVI.** A. B. e. 6; 3054, **XVI.** A. B. e. 8; 2783, **XVI.** A. B. e. 12; 214, **XVI.** A. B. h. 3; 3211, **XXI.** A. B. b. 28; 3664, **XXIII.** A. B. 27; 2298, **XXV.** A. B. b. 233; 4218, **XXV.** A. B. b. 234; 3732, **XXV.** A. B. b. 235.

Syme's.

4543, **XVI.** A. A. d. 2; 828, **XVI.** A. A. d. 3; 3068, **XVI.** A. B. e. 7; 296, **XVI.** A. B. e. 9; 303, **XVI.** A. B. e. 10; 691, **XVI.** A. B. e. 11; 817, **XVI.** A. B. f. 178; 1706, **XVI.** A. B. h. 1; 2281, **XVI.** A. B. h. 2; 2165, **XXI.** A. B. b. 27; 4369, **XXV.** A. B. b. 229; 726, **XXV.** A. B. b. 230; 2857, **XXV.** A. B. b. 231.

XVII. INJURIES AND DISEASES OF THE BONES OF THE FOOT, NOT INVOLVING THE TARSAL ARTICULATIONS.

- **A.** Gunshot Injuries.
  - **A.** Primary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Excisions.
    - d. Disarticulations and amputations in the foot.
    - e. Amputations in the leg or thigh.
    - f. Other operations.
  - **B.** Secondary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Excisions.
    - d. Disarticulations and amputations in the foot.
    - e. Amputations in the leg or thigh.
    - f. Other operations.
    - g. Stumps.
    - h. Sequestra.
- **B.** Injuries not caused by Gunshot.
  - **A.** Primary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Dislocations.
    - d. Excisions.
    - e. Disarticulations and amputations in the foot.
    - f. Amputations in the leg or thigh.
    - g. Other operations.
  - **B.** Secondary Conditions.
    - a. Contusions and partial fractures.
    - b. Complete fractures.
    - c. Dislocations.
    - d. Excisions.
    - e. Disarticulations and amputations in the foot.
    - f. Amputations in the leg or thigh.
    - g. Other operations
    - h. Stumps.
    - i. Sequestra.
- **C.** Diseases.

XVII. BONES OF THE FOOT.

A. Gunshot Injuries.

A. Primary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Excisions.
- d. Disarticulations and amputations in the foot.
- e. Amputations in the leg or thigh.
- f. Other operations.

b. Complete Fractures.

3142. The left tarsus and metatarsus, with the first metatarsal bone fractured. This specimen possesses no surgical
b. 1. interest and is preserved because it admirably shows the relations of the various bones.
Received from the Army of the Potomac.

B. Secondary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Excisions.
- d. Disarticulations and amputations in the foot.
- e. Amputations in the leg or thigh.
- f. Other operations.
- g. Stumps.
- h. Sequestra.

a. Contusions and Partial Fractures.

2660. The left calcaneum, partially fractured on its internal surface.
a. 1. Private C. E. F., "D," 36th Wisconsin, 25: Cold Harbor, 3d June; amputated at knee joint, on account of gangrenous condition of soft parts, by Assistant Surgeon S. B. Ward, U. S. Vols., 9th June, 1864.
Contributed by the operator.
See classes **XIV.** A. B. e; **XXIII.** A. B.

b. Complete Fractures.

2110. The first metatarsal bone of the right great toe, two months after injury. The bullet fractured the bone near the
b. 1. phalangeal articulation, and the specimen shows the extremity necrosed with a loss of substance.
Private W. J. O., "G," 41st Alabama (Rebel): Charleston, Tenn., 24th November, 1863; admitted hospital, near Chattanooga, 3d January; died from apnœa consequent upon abscess of epiglottis, 24th January, 1864.
Contributed by Assistant Surgeon A. B. Taylor, Indiana Volunteers.

1458. Portions of the right foot, fractured in the third, fourth and fifth metatarsal bones.
b. 2. Private J. B., 157th New York, 28: Gettysburg, 2d July; admitted hospital, Baltimore, 9th; died from tetanus, induced by exposure on the field and in transportation, 10th July, 1863.
Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

For other illustrations, see 3407, **XXII.** A. B. c. 19; 2730, **XXVII.** B. B. d. 186.

d. Disarticulations and Amputations in the Foot.

3510. A portion of the first phalanx of the left great toe, carious after fracture and amputated through the metatarsal
d. 1. bone.

Contributor and history unknown.

1116. A wet preparation of the second toe of the right foot, amputated at the metatarsal articulation. The toe is much
d. 2. flexed upon itself, but the exact character of the injury does not appear.

Private H. M. P., "D," 5th New Hampshire: injured, 1st December, 1862; amputated by Surgeon L. Quick, U. S. Vols., Baltimore, 27th April, 1863.

Contributed by the operator.

2364. Necrosed fragments from the least toe.
d. 3. Corporal W. H. K. E., "F," 15th New Jersey, (or New York,) 30: Wilderness, Va; admitted hospital, Washington, 17th May; amputated at metatarso-phalangeal articulation by Surgeon N. R. Mosely, U. S. Vols., 23d May; returned to duty, 12th December, 1864.

Contributed by the operator.

1063. Two fragments from the second toe of the left foot, amputated at the metatarsal articulation.
d. 4. Private F. W., "H," 96th Pennsylvania, 20: Spottsylvania, 12th May; admitted hospital, Washington, 22d; amputated by Surgeon N. R. Mosely, U. S. Vols, 23d May; returned to duty, 2d December, 1864.

Contributed by the operator.

e. Amputations in the Leg or Thigh.

1187. A ligamentous preparation of a portion of the left foot, one month after injury. The posterior portion of the
e. 1. calcaneum is fractured with loss of substance The other foot was wounded also.

Corporal J. W., "B," 26th Pennsylvania: Second Fredericksburg, 3d May; admitted hospital, Washington, 9th May; amputated in lowest third, 2d June, 1863.

Contributed by Surgeon J. H. Baxter, U. S. Vols.

For other illustrations, see 2061, **XV.** A. B. d. 42; 4336, **XV.** A. B. f. 18; 2757, **XV.** A. B. f. 20; 4172, **XV.** A. B. f. 50.

B. Injuries not caused by Gunshot.

B. Secondary Conditions.
- a. Contusions and partial fractures.
- b. Complete fractures.
- c. Dislocations.
- d. Excisions.
- e. Disarticulations and amputations in the foot.
- f. Amputations in the leg or thigh.
- g. Other operations.
- h. Stumps.
- i. Sequestra.

e. Disarticulations and Amputations in the Foot.

See 869, **XXII.** B. D. 8.

C. Diseases.

3694. An exostosis, one inch in length, removed from the upper extremity of the first metatarsal for encroachment upon
C. 1. the second and the tarso-metatarsal articulation after gunshot fracture.

Corporal F. P., 146th Co., 2d Battalion, V. R. C.: excised with chain saw by Surgeon H. Culbertson, U. S. Vols., 31st December, 1864.

Contributed by the operator.

3687. A large irregular exostosis, removed from the fifth metatarsal of the right foot for impingement upon the fourth
C. 2. metatarsal and the tarso-metatarsal articulation. Cause unknown.

Mrs. K.

Contributed by Surgeon H. Culbertson, U. S. Vols.

XVIII. INJURIES AND DISEASES OF THE ORGANS OF CIRCULATION.

- **I.** Heart, Pericardium and Great Vessels of the Thorax.
  - **A.** Gunshot Injuries.
    - **A.** Primarily Fatal.
    - **B.** Secondary Results.
  - **B.** Injuries not caused by Gunshot.
    - **A.** Primarily Fatal.
    - **B.** Secondary Results.
  - **C.** Diseases.
    - **A.** Primarily Fatal.
    - **B.** Secondary Results.
  - **D.** Peculiar Distributions.

- **II.** Arteries.
  - **A.** Gunshot Injuries.
    - **A.** Primary Conditions.
      - a. Not operated upon.
      - b. Ligated in continuity.
      - c. Ligated after division.
      - d. Other operations.
    - **B.** Secondary Conditions.
      - a. Not operated upon
      - b. Ligated in continuity.
      - c. Ligated after division.
      - d. Other operations.
  - **B.** Injuries not caused by Gunshot.
    - **A.** Primary Conditions.
      - a. Not operated upon.
      - b. Ligated in continuity.
      - c. Ligated after division.
      - d. Other operations.
    - **B.** Secondary Conditions.
      - a. Not operated upon.
      - b. Ligated in continuity.
      - c. Ligated after division.
      - d. Other operations.
  - **C.** Diseases.
    - **A.** Operated Upon.
      - a. Primary.
      - b. Secondary.
    - **B.** Without Operation.
      - a. Primary.
      - b. Secondary.
  - **D.** Peculiar Distributions.

XVIII. INJURIES AND DISEASES OF THE ORGANS OF CIRCULATION—Continued.

III. Veins.

- **A.** Gunshot Injuries.
  - **A.** Primary Conditions.
    - a. Not operated upon.
    - b. Ligated in continuity.
    - c. Ligated after division.
    - d. Other operations.
  - **B.** Secondary Conditions.
    - a. Not operated upon.
    - b. Ligated in continuity.
    - c. Ligated after division.
    - d. Other operations.
- **B.** Injuries not caused by Gunshot.
  - **A.** Primary Conditions.
    - a. Not operated upon.
    - b. Ligated in continuity.
    - c. Ligated after division.
    - d. Other operations.
  - **B.** Secondary Conditions.
    - a. Not operated upon.
    - b. Ligated in continuity.
    - c. Ligated after division.
    - d. Other operations.
- **C.** Diseases.
  - **A.** Operated Upon.
    - a. Primary.
    - b. Secondary.
  - **B.** Without Operation.
    - a. Primary.
    - b. Secondary
- **D.** Peculiar Distributions.

XVIII. ORGANS OF CIRCULATION.

I. Heart, Pericardium and Great Vessels of the Thorax.

A. Gunshot Injuries. { A. Primarily Fatal. B. Secondary Results.

A. Primarily Fatal.

1052. A wet preparation of the heart, with the left ventricle perforated by gunshot near the apex.
A. 1. Private B. N., "B," 69th New York: murdered, Washington, 13th August, 1862.
Contributed by Medical Cadet E. Coues.

2639. A wet preparation of the lower half of the heart, showing a perforation of the left ventricle by a small conoidal
A. 2. pistol ball. The missile is attached. The bullet entered between the fifth and sixth ribs, entered the left ventricle one inch above the apex and near the septum, escaped an inch and three-fourths from the apex and three-fourths of an inch from the septum and lodged, inverted, in the body of the eleventh dorsal vertebra, not entering the spinal canal.
Lieutenant D. H. J., "I," 55th Massachusetts: killed instantly, by accident, Yellow Bluff, Fla., 23d March, 1864.
Contributed by Assistant Surgeon Burt. G. Wilder, 55th Massachusetts.

837. A wet preparation of the heart, perforated by a conoidal pistol bullet which entered the left ventricle and emerged
A. 3. from the right auricle.
Private C. T., 1st Maryland Potomac Home Brigade, 25: shot, Frederick, 11 p. m., 14th February, 1862; died one hour afterward.
Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

504. A wet preparation of the heart and portions of the great vessels, showing a bullet embedded between the arteria
A. 4. innominata and vena cava descendens within the pericardium.
Contributed by Surgeon D. W. Bliss, U. S. Vols.

For other illustrations, see 4065, **XVIII. II.** A. a. a. 1.

C. Diseases. { A. Primarily Fatal. B. Secondary Results.

A. Primarily Fatal.

2164. A wet preparation of an aneurism of the aorta which burst into the pericardium The aneurism, upon the posterior
A. 1. side of the aorta, an inch and a half from its origin, is about the size of an egg and firmly adherent to the descending cava and pericardium. Twenty-six ounces of blood was found in the pericardium, which prevented the heart's action and produced death by asphyxia. (The specimen embraces the origins of the innominata, left subclavian and left common carotid.)
Private P. F., "H," 4th U. S. Cavalry, 42: had never reported sick, and died suddenly in camp, Tennessee, 9th December, 1863.
Contributed by Acting Assistant Surgeon Thomas Bowen.

B. Secondary Results.

2243. A wet prepartion of the heart and pericardium, showing a marked case of pericarditis following gunshot of the
B. 1. thorax. Both of the serous surfaces are shaggy with profuse deposits of lymph, which in the recent state were pinkish in color. Toward the posterior surface the two sides of the pericardium are united. Thirty-two ounces of clear mahogany-colored serum was found in the pericardial cavity.

Private W. L., "B," 6th Ohio Cavalry, 18: wounded in a skirmish in Virginia by a conoidal ball which entered near the fourth rib on the left side, behind the costal cartilage, and escaped through the seventh rib in front of its angle, while at the same time another ball entered from behind near the tenth rib and fractured the ninth posteriorly to its cartilaginous extremity: admitted hospital, Washington, 12th September; died from pleurisy and pericarditis, 6th October, 1863.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

See 1722, **XIX.** A. B. a. 8.

II. Arteries.

A. Gunshot Injuries.

A. Primary Conditions.

a. Not operated upon.
b. Ligated in continuity.
c. Ligated after division.
d. Other operations.

a. Not Operated Upon.

4065. A section of the abdominal aorta, perforated by a bullet.
a. 1. Contributor and history unknown.

See 4064, **III.** A. A. b. 15, *from the same case.*

See class **XVIII. I.** A. A. a.

3377. A preparation of the right subclavian, perforated at the junction of its second and third portions, as if by a
a. 2. buckshot or small pistol ball.

Contributor and history unknown.

b. Ligated in Continuity.

2545. A wet preparation of the brachial, axillary and subclavian arteries, the latter two ligated for secondary hæmorrhage.

b. 1. Sergeant E. O. G., "M," 4th New York Heavy Artillery, 22: flesh wound in the upper part of the right arm, Cold Harbor, 4th June; admitted hospital, Philadelphia, 17th; right axillary ligated in its continuity for hæmorrhage, 25th June; subclavian ligated for hæmorrhage, 1st July, 1864; died the same day.

Contributed by Acting Assistant Surgeon W. Scott Hendrie.

c. Ligated after Division.

2613. A wet preparation of the brachial artery, fifteen hours after amputation. Death occurred fifteen hours after
c. 1. operation and twenty-eight days after the wound.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

B. Secondary Conditions. { a. Not operated upon. b. Ligated in continuity. c. Ligated after division. d. Other operations.

a. NOT OPERATED UPON.

3410. A wet preparation, showing an opening by ulceration from a conoidal ball lodging against the innominata just
a. 1. below the origin of the carotid. "A diffused aneurism had formed around it."

Private W. A. J., "A," 7th Virginia, 26: date of injury not reported; admitted hospital, Washington, 30th October; died from secondary hæmorrhage, 31st October, 1864.

Contributed by Acting Assistant Surgeon C. B. McQuesten.

2576. A wet preparation of the left axillary artery, which has sloughed in the middle of its course after gunshot.
a. 2. Private A. A., "F," 25th Massachusetts, 25: musket ball entered axilla and was extracted on the posterior border of the scapula, Cold Harbor, 3d June; profuse secondary hæmorrhage, checked by compression and persulphate of iron, Washington, 15th and 16th; axillary ligated and death occurred, 17th June, 1864.

Contributed by Acting Assistant Surgeon W. L. Herriman.

See class **XVIII. II.** A. B. b.

881. A wet preparation of the left common, external and internal carotid arteries, the last of which was wounded and
a. 3. is impermeable.

Private L. E., 22: a bullet entered his open mouth, passed through the middle of the left anterior pillar of the fauces and escaped through the back of the neck, two inches from the spinous process of the second cervical vertebra on the same side, causing profuse hæmorrhage followed by syncope for several hours, Antietam, 17th September; doing well until two slight arterial hæmorrhages occurred, Frederick, 31st October and 2d November; paralysis left side of the face, 13th November; died, 14th November, 1862. Injection of the carotid arteries revealed the left internal closed, after two and a half inches, by an organized *cul de sac*, its distal termination and its branches being undiscovered. It appears the bullet laid open the internal carotid, and a coagulum, sufficient to arrest further hæmorrhage, was formed while fainting, and the remainder of the artery was disintegrated and carried away by suppuration. The succeeding hæmorrhages may have occurred from minute openings in the external carotid occurring spontaneously and arrested in like manner. (See *Am. Jour. Med. Sci.* January, 1863, pp. 79–80.)

Contributed by Acting Assistant Surgeon Redfern Davies.

See 778, **III.** A. B a. 11.

2222. A wet preparation of a portion of the right common, external and internal carotid arteries, showing a solution of
a. 4. the coats of the artery near the origin of the internal maxillary.

Corporal R. I. F., "F," 60th New York, 22: right superior maxilla shattered by a ball which entered the nose and escaped near the right ear, Second Fredericksburg, 3d May; admitted hospital, Washington, 7th; secondary hæmorrhages, 9th and 11th; died, 11th May, 1863. The alarm of the patient prevented active surgical interference.

Contributed by Acting Assistant Surgeon E. F. Bates.

2343. A wet preparation of the carotid artery, without a complete history.
a. 5. There is an enlarged open sac communicating with the vessels midway of the specimen, believed to be occasioned by the lodgement of a bullet. The walls of the sac are much thickened.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

1742. A wet preparation of the larynx and tissues on the right side of that organ. A bullet entered the upper lip to
a. 6. the left of the median line, passed through the tongue and escaped through the external border of the middle of the sterno-cleido-mastoid. A glass tube in the specimen indicates the course of the bullet. The right common carotid sloughed in the track of the missile, as seen by a director of wood passed through the vessel.

Private E. H. D., "K," 86th New York, 22: probably Chancellorsville, 3d May; admitted hospital, Washington, 8th; died from secondary hæmorrhage, 12th May, 1863.

Contributed by Acting Assistant Surgeon J. P. Wyer.

2835. A wet preparation of the left subscapular artery, which has sloughed after gunshot.
a. 7. Private F. M. D., "D," 35th North Carolina, (Rebel,) 27: conoidal ball through axilla, Petersburg, 16th June; admitted hospital, Washington, 25th June; secondary hæmorrhage checked by pressure and persulphate of iron, 10th July; hæmorrhage recurred and death, 12th July, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

1190. A wet preparation of the soft tissues of the right elbow, showing a false aneurism of the common interosseous.
a. 8. A wooden director is passed through the artery from its origin to the seat of injury, which is near the bifurcation. The injury is due to a fragment of bone, which may be observed still embedded in the specimen. An excision of three and a half inches of the radius for comminution was first made, and subsequently amputation was performed.

Contributed by Surgeon C. Allen, U. S. Vols.

See 1189, **VIII.** A. B. c. 26.

3454. A wet preparation, from a case of pyæmia, of portions of the right, common and external iliacs and femoral
a. 9. arteries, showing an embolus in the latter near the seat of fracture in the thigh.

Private J. S., "A," 55th Ohio, 20: thigh fractured by gunshot, Chancellorsville, 3d May; admitted hospital, Washington, 15th June; slight secondary hæmorrhage checked by persulphate of iron, 22d June; died from pyæmia, (fractur firmly consolidated,) 31st July, 1863.

Contributed by Surgeon J. A. Lidell, U. S Vols.

See 1536, **XIII.** A. B. b. 33.

See class **XVIII. II.** C. B. b.

2114. A wet preparation of the upper portion of the left femoral artery, with the walls much thickened by a coagulum
a. 10. in the sheath following impingement of a ball which induced diminution of calibre.

Private H. K., "D," 149th New York: flesh wound of both thighs, Dalton, Ga., 27th November; thigh amputated at junction of lower thirds for gangrene caused by exposure to cold and diminished size of artery, 14th December, 1863; died of pyæmia, 14th January, 1864.

Contributed by Assistant Surgeon W. Teal, 88th Indiana.

See class **XXIII.** A. C.

3794. A wet preparation of portions of the left femoral artery and vein, wounded by gunshot. The artery, after death
a. 11. from pyæmia, was found completely severed and occluded in both portions by firm clots The vein was opened and filled with pus two inches above Poupart's ligament. Above that point, to near the internal iliac, it was filled with a coagulum of lymph.

Private E. H. C., "I," 26th Massachusetts, 22: conoidal ball through fleshy part of the left thigh, with severe hæmorrhage which ceased spontaneously, Winchester, 19th September; venous hæmorrhage, 25th September; died from pyæmia, 17th October, 1864.

Contributed by Surgeon C. H. Andrus, 176th New York.

See classes **XVIII. III.** A. B. a.; **XVIII. III.** C. B. b.

1518. A wet preparation of the right femoral artery and vein, from a case of gunshot fracture of the femur, followed in
a. 12. three months by death. "The sheath of the artery appears thicker and stronger than natural."

Lieutenant F. B., "B," 82d Illinois, 44: femur fractured by round bullet, Chancellorsville, 2d May; admitted hospital, Washington, 15th June; died exhausted, fracture ununited, 2d August, 1863. A large abscess occupied the thigh by the walls of which the artery ran for several inches, purulent infiltration extending beyond it.

Contributed by Surgeon John A. Lidell, U. S. Vols.

3959. A wet preparation of portions of the femoral vessels, wounded by gunshot. The femoral and profunda arteries
a. 13. are completely torn across an inch and a half below the origin of the profunda. (There is no mention in the history of a wound of the artery where it is held together by wire in the specimen.) The femoral and saphena veins are both torn near their junction.

Private A. A. B., "F," 8th Illinois Cavalry, 20: wounded and tourniquet applied, Williamsport, Md., 7th July; admitted hospital, with instrument still in position, Frederick, 8th; died from mortification of limb, 9th July, 1863.

Contributed by Acting Assistant Surgeon Morgan.

See class **XVIII. III.** A. B. a.

2797. A wet specimen of a portion of the femoral artery, with an orifice in the walls, as though caused by sloughing
a. 14. after gunshot.

Sergeant B. F. F., "H," 2d New York Heavy Artillery, 22: admitted hospital, with gunshot fracture of the lowest third of the right femur, Baltimore, 21st July; amputated for secondary hæmorrhage, 2d August, 1865; died within two hours.

Contributed by Surgeon Thomas Sim, U. S. Vols.

2562. A wet preparation of portions of the right femoral and profunda arteries after secondary hæmorrhage, showing
a. 15. one of the circumflex arteries torn by gunshot.

Private W. H., "D," 184th Pennsylvania, 28: a conoidal ball entered the right groin half an inch to the right of the femoral artery, passed downward and inward and fractured the left knee, Cold Harbor, 3d June; admitted hospital, much debilitated, Alexandria, 7th; secondary hæmorrhage, 13th; died, 14th June, 1864. No operation was performed, owing to the pyæmic condition of subject.

Contributed by Acting Assistant Surgeon P. Wilson.

See 2561, **XIV.** A. B. b. 17; 1779, **XV.** C. 2.

1877. A wet preparation of the femoral vessels, from a case of gangrenous ulcer. The history is incomplete, and the
a. 16. specimen simply shows the walls hardened by the action of alcohol, and possibly thickened as the result of disease. At no point are they observed open by sloughing.
W. F.: from Philadelphia.

2614. A preparation, which appears to be of the femoral artery. A great breach in its wall, just above the origin of the
a. 17. anastomotica magna, is the probable result of sloughing after gunshot.
Contributed by Acting Assistant Surgeon Jas. Eagleston.

2150. A wet preparation of the popliteal artery, showing a clot formed in it from inflammation along the track of a
a. 18. ball which did not involve the arterial coats in the sloughing process. Amputation was performed to obviate sphacelus, and the subject recovered.
Contributed by Surgeon I. Moses, U. S. Vols.

2247. A wet preparation of the popliteal artery and vein, after amputation for sphacelus. The artery was divided by
a. 19. gunshot, and its end was surrounded by a semi-organized clot sufficiently firm to prevent hæmorrhage.
Sergeant D. A. B., "B," 99th Pennsylvania: Kelly's Ford, Va., 7th November; admitted hospital, Washington, 9th; amputated, 10th November, 1863.
Contributed by Surgeon John A. Lidell, U. S. Vols.
See 2246, **XVIII. II.** A. B. c. 19; 3991, **XVIII. III.** A. B. a. 7.

856. A wet preparation of the popliteal artery, after amputation. The artery appears to have been completely divided
a. 20. by gunshot and closed by coagulum on the proximal side. The accompanying vein is opened at the seat of injury; probably by the subsequent sloughing.
Contributed by Surgeon H. S. Hewit, U. S. Vols.
See class **XVIII. III.** A. B. a.

3579. A wet preparation of portions of the right popliteal artery and vein, partially divided by a bullet.
a. 21. Corporal T. K., "H," 2d U. S. Cavalry, 24: wounded, 7th May; admitted hospital, with aneurismal thrill, Washington, 11th; amputated in the lowest third of the thigh, 14th May; died from pyæmia, 4th June, 1864.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.
See 3545, **XIII.** A. B. f. 48; 3529, **XVIII. III.** A. B. a. 4.

535. A wet preparation of the left knee, amputated in the lowest third of the femur. The femur has been grazed
a. 22. above the condyle and the popliteal artery cut across by a bullet.
Contributed by Surgeon J. P. Prince, 36th Massachusetts.
See class **XIII.** A. B. a.

888. A wet preparation of the popliteal artery, showing two large sloughs in the walls of the vessel from gangrene
a. 23. after a flesh wound.
Private D. W., "A," 57th New York, 23: Antietam, 17th September; violent hæmorrhage from the popliteal, 2d December; thigh amputated in the lowest third by Acting Assistant Surgeon A. V. Cherbonnier, 2d; died, 20th December, 1862.
Contributed by the operator.
See class **XXIII.** A. B.

3963. A wet preparation of portions of the femoral, popliteal, anterior and posterior tibial arteries and popliteal vein,
a. 24. after amputation for secondary hæmorrhage, eighteen days after gunshot. The specimen shows a large, well-organized clot near the orifice of the posterior tibial, which is severed at its origin. A bit of wood protruding marks the cut extremity of the vein.
Sergeant L. H. M., "M," 5th Michigan Cavalry, 27: ball passed through the popliteal space, Funkstown, Md., 8th July; admitted hospital, Frederick, 17th; hæmorrhage, 21st—26th July, when the thigh was amputated in lowest third; died, 19th August, 1863.
Contributed by Acting Assistant Surgeon Adams.

1737. A wet preparation of the left popliteal and posterior tibial arteries, showing the last-named severed by the
a. 25. passage of a bullet. A ligature upon the specimen appears to have been placed there after death.
Lieutenant Colonel W. G. D., Cobb's Legion (Rebel): fibula fractured, Madison C. H., Va., 22d September; admitted hospital, Washington, 25th September; died, gangrenous to the knee, 2d October, 1863.
Contributed by Surgeon J. A. Lidell, U. S. Vols.
See class **XXIII.** A. C.

1491. A wet preparation of the upper portion of the left leg, showing a wound of the anterior tibial artery. The tibia
a. 26. was perforated by a bullet striking it on its anterior border a little below the knee, shattering the fibula in its escape. "Before being transferred to the boat he had two severe attacks of secondary hæmorrhage. No attempt having been made to arrest it by ligating the artery in the wound, or by tying the femoral, he was so far exhausted when received that an operation could not have been performed."

Contributed from Hospital Transport "D. A. January," Mississippi river, by Surgeon A. H. Hoff, U. S. Vols.

1698. A wet preparation of the upper portion of the bones and interosseous tissue of the right leg, showing traumatic
a. 27. aneurisms of both tibial arteries.

Private J. H., "C," 22d Massachusetts, 19: a conoidal ball passed between the bones three inches below the knee, Gettysburg, 2d July; admitted hospital, Baltimore, 11th; slight hæmorrhage, 21st and 22d July; amputated in lowest third of thigh for secondary hæmorrhage and incipient gangrene of the foot, 5th August; died from pyæmia, 16th August, 1863.

Contributed by Surgeon C. W. Jones, U. S. Vols.

See class **XXIII.** A. c.

3653. A wet preparation of the posterior tibial artery, severed by a conoidal ball which fractured the fibula.
a. 28. Private H. C., "I," 24th Michigan: Wilderness, 6th May; two inches of the shaft of the fibula excised, Washington, 19th; thigh amputated lowest third for mortification, 22d; died, 27th May, 1864.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

875. A wet preparation of the posterior tibial artery showing ulceration of the coats, from a case of secondary hæmor-
a. 29. rhage after gunshot.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

1718. A preparation of the popliteal artery, with its continuations. The anterior tibial and femoral are ulcerated near
a. 30. their origins. Amputation was performed in the thigh.

Contributed by Assistant Surgeon C. C. Byrne, U. S. Army.

For other illustrations, see 2430, **XX.** A. B. a. 5; 4537, **XXVII.** B. B. d. 111.

b. Ligated in Continuity.

2607. A wet preparation of portions of the arch of the aorta, the innominata, left common carotid and subclavian arteries,
b. 1. terminating at the point of ineffectual ligation of the left subclavian in its third portion. The specimen shows separation of the coats with no formation of clot.

Private S. R. P., "D," 14th U. S. Infantry: arm amputated near the shoulder for shell wound, Chancellorsville, 3d May, admitted hospital, with erysipelas, from Washington, Philadelphia, 17th June; hæmorrhage, 8th July; hæmorrhage and ligation of subclavian, 9th; hæmorrhage at point of ligation and digital compression substituted, 16th; died, 18th July, 1863.

Contributed by Acting Assistant Surgeon D. Kennedy.

See class **XXIII.** A. A.

1684. A wet preparation of the left subclavian artery, forty-six days after ligation in the third portion for traumatic
b. 2. aneurism of the axillary after gunshot, and twenty-eight days after the ligature came away.

Captain J. F. J., "B," 13th Virginia Cavalry, (Rebel,) 31: a carbine ball passed through the brachial plexus of nerves and cut the auxillary artery one and a half inches above its termination, Middleburg, Va, 21st June; admitted hospital, Washington, 23d June; a circumscribed traumatic aneurism at the seat of injury appeared, 12th July; subclavian ligated at the external border of scalenus by Surgeon John A. Lidell, U. S. Vols., 14th; aneurismal sac opened spontaneously, 19th July; ligature separated without hæmorrhage, 1st August; profuse hæmorrhage from the sac, arrested by injection of solution of persulphate of iron, 6th; hæmorrhage recurred, 10th, 11th, and 18th; died, exhausted with the suppuration and the hæmorrhages, 29th August, 1863.

Contributed by the operator.

See 3243, **XXII.** A. B. b. 2.

3634. A wet preparation of the right subclavian, supposed to have been ligated (probably for secondary hæmorrhage,
b. 3. after fracture of the scapula and clavicle).

Private L. R., "D," 16th Pennsylvania Cavalry.

Contributed by Acting Assistant Surgeon W. F. Atlee.

See 3650, **IV.** A. B. b. 31.

4331. A wet preparation of the right subclavian artery, ligated in its third portion for secondary hæmorrhage from the
b. 4. subscapular. The suprascapular and transversalis colli arose too near the point of ligation to permit the formation of a clot on the proximal side. The distal portion of the artery contained a large coagulum. The subscapular had sloughed near its origin in the track of the missile. The subclavian vein was found open in the track of the wound.

Private T. C., "G," 48th New York, 21: conoidal ball through axilla, below Fort Darling, Va., 9th May; admitted hospital, New York, 23d; hæmorrhage controlled by pressure, 27th; hæmorrhage recurred, 30th; and again, when the subclavian was ligated in its third portion by Acting Assistant Surgeon G. F. Shrady, 31st May; two venous hæmorrhages, 1st June; a vein of the axillary plexus tied by Acting Assistant Surgeon Shrady for a third hæmorrhage, and death occurred three hours afterward, 2d June, 1864.

Contributed by the operator.

See classes **XVIII. II.** D.; **XVIII. III.** A. B. a.; **XVIII. III.** A. B. b.

2812. A wet preparation of the right subclavian, twelve days after its ligation in the third part. The specimen shows
b. 5. the formation of a partial clot. Bits of wood are introduced in the vertebral, internal mammary, thyroid axis and superior intercostal arteries. Subject was of a peculiar hæmorrhagic diathesis and suffered a severe cough.

Sergeant H. B., "D," 12th New Hampshire, 21: wounded in the right shoulder, Cold Harbor, 3d June; admitted hospital, Washington, 16th; ligated for secondary hæmorrhage by Surgeon N. R. Mosely, U. S. Vols., 17th; ligature gave way and died, 29th June, 1864.

Contributed by the operator.

2568. A wet preparation showing ulceration of the right subclavian following ligation, and also the cicatrix embracing
b. 6. the nerves and vessels on the face of the stump. The specimen shows the main artery completely occluded, although secondary hæmorrhage frequently occurred; a coagulum in the subclavian on the cardiac side of the point of ligation, that on the distal side appearing to have been destroyed by ulceration; a complete coagulum of the vein. Two bits of wood have been introduced at the point of ulceration.

Private S. D., "C," 9th Illinois Cavalry: arm fractured and amputated in the upper third, Tupelo, Miss., 14th July; admitted hospital, Memphis, 25th July; gangrene in stump, 1st August; hæmorrhage from stump, 8th and 10th; subclavian ligated by Acting Assistant Surgeon J. N. Sharp, 10th; hæmorrhage from stump arrested by solution persulphate of iron, 17th and 23d; ligature came away, 25th; hæmorrhage from subclavian and death, 30th August, 1864.

Contributed by Assistant Surgeon W. M. Dorran, U. S. Vols.

See classes **XVIII. III.** A. B. a.; **XXIII.** A. B.

2609. A wet preparation of a traumatic aneurism of the right axillary artery, with the subclavian ligated in the third part.
b. 7. Sergeant H. G., "K," 5th U. S. Cavalry: bullet through right axilla, Beverly Ford, Va., 9th June; admitted hospital, Philadelphia, with aneurism, 23d June; secondary hæmorrhage, 16th August; subclavian ligated by Medical Inspector R. H. Coolidge, U. S. Army; [a nerve lying directly under the artery was accidentally included in the ligature, although, in the opinion of the assistants at the time of the operation, nothing but the artery was embraced;] died six hours afterward, 17th August, 1863. See *Am. Jour. Med. Sciences*, Vol. XLVII., p. 128.

Contributed by Acting Assistant Surgeon Isaac Norris, jr.

See 1448, **XXVII.** B. B. c. 45.

4339. A wet preparation, in two portions, of parts of the aorta, innominata, left common carotid, subclavian and
b. 8. axillary arteries, the last of which has been ligated near its origin for secondary hæmorrhage following false aneurism after gunshot. About two inches of the artery had nearly disappeared, and around the deficiency a cavity with several ounces of organized clot existed.

Private G. R. P., 3d Maine, 21: shoulder wounded by buckshot and left arm amputated in the middle third about 15th May; admitted hospital, with a fluctuating tumor near the lower angle of scapula, New York Harbor, 8th June; hæmorrhage from the anterior wound, below the outer third of clavicle, 1st and 20th July; axillary ligated near its origin for hæmorrhage, 28th July; died from secondary hæmorrhage, 5th August, 1862. The ligature could not be found after death.

Contributed by Acting Assistant Surgeon S. Teats.

See 1827, **VI.** A. B. f. 28; 4338, **VI.** C. 1.

2674. A wet preparation of the axillary, showing nearly half of the calibre of the vessel cut away by a musket ball in
b. 9. its upper portion, from which injury death did not occur for nine days. A piece of cloth lodged in the artery is supposed to have assisted in restraining the hæmorrhage.

Private W. H., "H," 15th U. S. Infantry, 19: accidentally, Mobile, 11th January; lost blood to syncope; secondary hæmorrhage, 20th–21st; ligated by Surgeon Coale, U. S. Vols., 22d January, 1866; died a few minutes afterward.

Contributed by Assistant Surgeon H. J. Phillips, U. S. Army.

See class **XXVII.** B′. B′.

3630. A wet preparation of the axillary artery, showing great loss of substance by sloughing after gunshot.
b. 10. Private J. L., "E," 25th Massachusetts: conoidal ball through axilla, Petersburg, 10th August; admitted hospital, Philadelphia, 17th; slight secondary hæmorrhage, controlled by pressure, 27th; severe hæmorrhage, controlled by pressure on the subclavian, 29th August; an immense aneurism, formed by the sloughing of the coats, opened and ligatures placed on both sides of the injury, 17th September; arm amputated at the shoulder joint for mortification, and died, 19th September, 1864.

Contributed by Surgeon I. I. Hayes, U. S. Vols.

3679. b. 11. A wet preparation of the left axillary artery, ligated in its third portion for secondary hæmorrhage. The specimen, which is from a pyæmic subject, shows the artery patalous, having been cut through by the ligature, which came away after death.

Corporal P. Y., "F," 116th Ohio, 37: received a flesh wound in the middle and outer portion of the left arm from a conoidal ball, Winchester, 19th September; admitted hospital, wound sloughing, Philadelphia, 27th September; hæmorrhages, controlled by solution of alum and persulphate of iron, 4th, 5th, 6th October; artery ligated for severe hæmorrhage by Acting Assistant Surgeon W. L. Wells, 7th; died from pyæmia, 22d October, 1864.

Contributed by Surgeon Lewis Taylor, U. S. Army.

3973. b. 12. A wet preparation of the trachea and larynx, the upper lobe of the left lung, the arch of the aorta, the right and left carotids and some of the muscular tissue on the left side of the neck. The specimen shows the left common carotid to have been ligated for a traumatic aneurism. Death resulted from the artery opening into an abscess in the upper portion of the lung, twenty-three days after the ligature came away and thirty-seven after the operation. Wooden directors are passed into the two unnatural cavities through the openings in the vessel.

Private E. M. K., "I," 6th Pennsylvania Cavalry, 26: a buckshot entered the left side of the neck just above the anterior edge of the sterno-mastoid, a little below the thyroid notch, and passed out to the left of and below the occipital protuberance, causing severe hæmorrhage and great swelling, Harper's Ferry, Va., 1st January; admitted hospital with aneurism of left carotid, Frederick, 9th February; common carotid ligated below the omo-hyoid by Assistant Surgeon R. F. Weir, U. S. Army, 27th February; ligature came away, 13th March; slight hæmorrhages from wound controlled by pressure, 16th, 17th, 18th March; expectorated fresh red blood, 3d, 5th, 6th April; and died from profuse hæmorrhage by the mouth and suffocation by blood in trachea, 5 p. m., 6th April, 1863.

Contributed by the operator.

3981. b. 13. A wet preparation of the larynx and adjacent tissues, posteriorly and to the left side. The specimen shows a bullet lodged against the body of the sixth cervical vertebra, having severed the vertebral artery. The carotid has been ligated for secondary hæmorrhage that was supposed to proceed from the lingual, which also was severed.

Private W. F., "H," 9th Virginia: conoidal ball entered the right side of the face an inch from the outer angle of the mouth, fractured the lower jaw, severed the lingual artery and lodged, Halltown, Va, 25th August; admitted hospital, Frederick, 27th August; hæmorrhage from the mouth controlled by pressure on left common carotid, and artery then ligated by Assistant Surgeon R. F. Weir, U. S. Army, 3d September; died from secondary hæmorrhage, 4th September, 1864.

Contributed by the operator.

3409. b. 14. A wet preparation of the left common carotid, ten days after ligation for secondary hæmorrhage, showing a fair clot.

Corporal G. P., "H," 91st Pennsylvania, 28: bullet entered left side of chin and lodged beneath the angle of inferior maxilla, place and date not reported; admitted hospital, Washington, 31st October; secondary hæmorrhage arrested by compression, 4th November; common carotid tied by Surgeon N. R. Mosely, U. S. Vols., for recurring hæmorrhage, 6th; died from exhaustion, 16th November, 1864.

Contributed by Acting Assistant Surgeon W. H. Combs.

508. b. 15. A wet preparation of the left common carotid, completely plugged by a white fibimous clot, ten days after ligation for secondary hæmorrhage.

Private M. S., "D," 52d Pennsylvania: ball entered left mastoid process, passed beneath the inferior maxillary and emerged below the left eye, Fair Oaks, 31st May; secondary hæmorrhage, 13th and 14th June; artery tied above omo-hyoid, 14th; died, 24th June, 1862.

Contributed by Acting Assistant Surgeon D. W. Cheever.

898. b. 16. A wet preparation of the left common carotid, nine days after ligature. The artery has ulcerated without the formation of a clot.

Corporal J. Q., "G," 38th New York: ball entered behind the left condyle of the lower jaw and escaped at the left side of the nose, Fredericksburg, 13th December; profuse secondary hæmorrhages from the mouth, checked by plugging the nares, Washington, 25th, 26th, and 27th; common carotid ligated above the omo-hyoid by Acting Assistant Surgeon H. N. Fisher, 27th December, 1862; ligature came away and death from secondary hæmorrhage followed, 5th January, 1863.

Contributed by the operator.

3179. b. 17. A wet preparation of the left common carotid, ligated an inch and a half below the bifurcation for secondary hæmorrhage following gunshot.

Private H. B., "A," 1st Palmetto (?) Sharpshooters, 18: wounded in the left temporo-maxillary region, Weldon R. R., Va.; admitted hospital, Washington, 24th August; hæmorrhage, 26th; common carotid ligated for hæmorrhage, 27th August; hæmorrhage recurred daily until death, 2d September, 1864. The bleeding vessel was never detected.

Contributed by Acting Assistant Surgeon H. M Dean.

3969. A wet preparation of the common carotid artery, ligated three-fourths of an inch below the bifurcation.
b. 18. Private G. W. B.. "G," 42d Virginia, (Rebel,) 25: neck and inferior maxilla wounded, Gettysburg, 3d July; secondary hæmorrhage from external carotid, Frederick, 9th; common carotid ligated, 10th; died, 13th July, 1863.
Contributed by Assistant Surgeon R. F. Weir, U. S. Army.
See 3902, **II.** A. A. b. 2.

1636. A wet preparation of the right common carotid, showing two ligations for secondary hæmorrhage after gunshot.
b. 19. Sergeant A. F., "D," 11th Indiana, 25: ball entered oral orifice and escaped through the right ramus of the inferior maxilla, Vicksburg, 24th June; common carotid tied at the crossing of the omo-hyoid, for secondary hæmorrhage, on the Hospital Steamer "Crescent City," 8th July; tied half an hour afterward, for recurrence of hæmorrhage, at the bifurcation, embracing both branches; hæmorrhage recurred, checked by plugging. 9th; died, 10th July, 1863.
Contributed by Surgeon J. T. Hodgen, U. S. Vols.
See 1635, **II.** A. B. b. 10.

2133. A wet preparation of a portion of the right common carotid, ligated one inch and a half above its origin.
b. 20. Private P. O'C., "H," 18th U. S. Infantry: a musket ball entering below the left zygomatic arch escaped below the angle of the inferior maxilla on the left side, Chickamauga, 20th September; secondary hæmorrhage from wound of exit and mouth, controlled by compress, 2d October; external carotid tied by Surgeon Cleary, U. S. Vols., 4th; hæmorrhage again checked by compress; recurred profusely and common carotid ligated by Surgeon I. Moses, U. S. Vols., 23d; died, exhausted, 25th October, 1863.
Contributed by Surgeon I. Moses, U. S. Vols.

3252. A wet preparation of the right common carotid, ligated for secondary hæmorrhage after gunshot. At the point
b. 21. of ligation an abscess extended for three-fourths of an inch above and below. The ligature had come away, leaving a well-formed clot. The vessel that gave rise to the hæmorrhage was never detected. In the specimen the internal carotid has been ligated, apparently as an experiment upon the cadaver.
Sergeant L. A. P., "B," 8th New York Heavy Artillery, 21: gunshot through the right ear, Ream's Station, Va., 25th August; admitted hospital, Washington, 28th August; secondary hæmorrhage restrained by persulphate of iron, 7th September; common carotid ligated for return of hæmorrhage, 9th; hæmorrhage recurred, 11th, 12th, 17th, 18th; ligature removed, 19th; died from hæmorrhage, 20th September, 1864. The parotid gland was in a suppurating condition around the place of ligation. The bleeding vessel was never detected.
Contributed by Acting Assistant Surgeon H. M. Dean.

2018. A wet preparation of the right common carotid, ligated an inch and a half below the bifurcation for secondary
b. 22. hæmorrhage after gunshot from the internal carotid.
Sergeant P. B. M., "A," 111th Pennsylvania: ball entered mouth, fractured right lower jaw and escaped near the vertebræ, place and date not reported; lost four quarts of blood from hæmorrhage from internal carotid, Tullahoma, Tenn., 2d December; lint saturated with solution of persulphate of iron held against the bleeding vessel, while the common carotid was ligated by Assistant Surgeon Pierce, 150th New York; hæmostatic retained "for a length of time;" doing well until 8th; died from inflammation of the brain, 9th December, 1863. A firm clot extended half an inch below and an inch and three-fourths above the point of ligation. The internal carotid was filled, as far as the entrance to the skull, with a firm fibrinous clot. Ligation of the internal carotid was impracticable from the tumefaction and the severity of the hæmorrhage.
Contributed by Surgeon Benjamin Woodward, 23d Illinois.

950. A wet preparation of the brachial artery, ligated (in two places) for secondary hæmorrhage after gunshot.
b. 23. Contributed by Assistant Surgeon Warren Webster, U. S. Army.

913. A wet preparation of the radial artery, ligated at its origin at the bifurcation of the brachial, for a wound of the
b. 24. elbow, on the field, Fredericksburg, and amputated a few days afterward on account of the severity of the wound.
Contributed by Hospital Steward A. J. Schafhirt, U. S. Army.

3645. A wet preparation, showing the radial artery ligated just below and the brachial artery just above the bifurcation.
b. 25. Corporal A. G., "D," 46th New York: flesh wound of right forearm from conoidal ball, Petersburg, 18th June; admitted hospital, anæmic and gangrenous, Philadelphia, 28th June; secondary hæmorrhage from the radial, which was ligated, 23d July; the tissues being disorganized and the bleeding continuing, the second ligature was tied the same day; died, exhausted, 25th July, 1864.
Contributed by Acting Assistant Surgeon W. B. Corbit.

3464. A wet preparation of the pelvic viscera, showing the left internal and common iliac arteries ligated for secondary
b. 26. hæmorrhage. The bullet entered the left gluteal region, passed into the pelvis and lodged in the right wall.
Private J. H., "H," 98th New York, 25: Weldon R. R., Va., 20th August; admitted hospital, Washington, 24th August; hæmorrhage, 4th September; left internal iliac tied by Assistant Surgeon J. C. McKee, U. S. Army, 12th; bleeding not ceasing, left common iliac tied the same day; hæmorrhage recurred, and died, 14th September, 1864.
Contributed by the operator.

3986. A wet preparation of the right and left common, external and internal iliac arteries, eighteen weeks after ligation
b. 27. of the right external iliac for traumatic aneurism. The specimen shows the ligated artery diminished to a small cord, and the corresponding internal branch much enlarged. Accompanying is a portion of the femoral artery which was ligated subsequently, but the point of ligation does not appear in the specimen. The ligatures about the lower end of the femoral and the left external iliac seem to have been placed post mortem.

Private J. R. L., "F," 10th Georgia, (Rebel,) 19: ball passed through the right thigh from front to rear, half an inch below Poupart's ligament, Antietam, 17th September; admitted hospital with wound closed, but with an aneurismal tumor in groin, Frederick, 27th October; external iliac ligated above the circumflex and epigastric by Assistant Surgeon R. F. Weir, U. S. Army, 6th November; slight attack of hospital gangrene, 25th November, 1862; an abscess near the cicatrix discharged, 2d March; arterial hæmorrhage, seven ounces, followed a counter-incision for discharge of pus, 13th; hæmorrhage, five ounces, 14th; hæmorrhage, seven ounces, sac opened, femoral necessarily cut, but without loss of blood, no vessel could be found, and death occurred from previous hæmorrhage and shock of operation, 16th March, 1863.

Contributed by the operator.

855. A wet preparation of a portion of the femoral artery, tied in Scarpa's triangle for secondary hæmorrhage from
b. 28. ulceration of the vessel in its middle third following gunshot.

Private H. G., "E," 8th New York Cavalry: operation and death, Frederick, 19th November, 1862.

Contributed by Surgeon H. S. Hewit, U. S. Vols.

See 768, **XIII.** A. B. b. 27.

1140. A dry preparation of a portion of the femoral artery, ligated in Scarpa's triangle for secondary hæmorrhage from
b. 29. the popliteal four days after the operation and forty-three after being wounded. The specimen shows a well-formed clot in the proximal portion and a smaller one in the distal portion.

Private —— F., —— Maine: posterior part of upper third of right leg wounded, Fredericksburg, 13th December, 1862; typhoid condition observed, 15th January; secondary hæmorrhage, controlled by pressure, 23d, 24th, 25th; femoral ligated by Surgeon J. A. Lidell, U S. Vols., 25th; died, 29th January, 1863. The autopsy showed the popliteal to have ulcerated.

Contributed by the operator.

2086. A wet preparation of the right femoral, ligated just above the origin of the profunda, which has been opened by
b. 30. gunshot.

Private G. H. M., "F," 3d Iowa, 23: canister shot entered Scarpa's triangle, left side, traversed the perineum and escaped two inches below the right trochanter major, causing great loss of blood, 18th May; admitted hospital, Memphis, 2d June; femoral ligated for hæmorrhage from right thigh, 3d; hæmorrhage from branches of internal iliac, 8th and 9th; died, 10th June, 1863.

Contributed by Acting Assistant Surgeon A. W. Nelson.

2249. A wet preparation of the left femoral artery, ligated below the origin of the profunda for the relief of a false
b. 31. aneurism.

Private D. R., "K," 7th Indiana, 20: bullet passed directly through the left thigh from behind, dividing both femoral artery and vein and escaping in Scarpa's space, Robinson's Creek, Va., 30th November; admitted hospital, Washington, 6th December; on examination it was found that there was free communication between the artery and vein in the sac, but no effusion of blood in the tissues, hence, not literally a false aneurism; but, the artery being obliterated and the aneurismal condition increasing, an operation became necessary; the tumor was laid open by Assistant Surgeon W. Thomson, U. S. Army, and were tied (1) the proximal end of the femoral vein near the entrance of the saphena for profuse hæmorrhage, (2) the femoral artery below the origin of the profunda, (3) the femoral artery two inches from the distal extremity, (4) the femoral vein near the distal extremity to control an accidental hæmorrhage, 9th; death followed mortification of limb, 13th December, 1863.

For a full history of this very interesting case, see MS. catalogue.

Contributed by the operator.

See 2250, **XVIII. III.** A. B. b. 1.

3960. A wet preparation of the femoral artery, ligated below the origin of the profunda for secondary hæmorrhage after
b. 32. amputation of the thigh for gunshot fracture of the knee.

Private E. T., "G," 1st Pennsylvania Artillery, 20: admitted hospital and thigh amputated, Frederick, 5th August; secondary hæmorrhage and artery ligated by Acting Assistant Surgeon J. H. Coover, 9th: died, 12th August, 1864.

Contributed by the operator.

See 3929, **XIV.** A. B. f. 136.

3105. A wet preparation of the femoral artery, ligated below the profunda for secondary hæmorrhage following gunshot.
b. 33. Private J. S., "F," 69th New York: admitted hospital, with severe contusion of femur from musket ball splitting upon it, Washington, 30th July; secondary hæmorrhage, 4th August; artery ligated by Acting Assistant Surgeon H. M. Dean, for secondary hæmorrhage, 5th; died from pyæmia, 21st August, 1864.

Contributed by the operator.

See 3106, **XIII.** A. B. a. 2; 3118, **XVIII. III.** C. B. b. 1.

3972. A wet preparation of portions of the left femoral and profunda arteries with their branches. The femoral is
b. 34. ligated for secondary hæmorrhage.

Private W. C., "C," 2d Massachusetts Cavalry: a conoidal ball entered the left popliteal space and escaped at the lower portion of the upper third, Berryville, Va.; admitted hospital, Frederick, 14th September; secondary hæmorrhage checked by compression, 24th; ligated for another hæmorrhage, 25th; died, 28th September, 1864. The bleeding point was not discovered.

Contributed by Acting Assistant Surgeon J. C. Shimer.

1357. A wet preparation of portions of the left profunda and femoral arteries, ligated for secondary hæmorrhage after
b. 35. gunshot.

Private C. D., "A," 47th Pennsylvania, 24: musket ball through middle third of thigh, injuring femur, Cedar Creek, Va., 19th October, 1864; admitted hospital, Philadelphia, 10th February; hæmorrhage from descending branch of the external circumflex, 4th March; profunda ligated near its origin by Acting Assistant Surgeon W. P. Moon, 5th; hæmorrhage from femoral, which was ligated just below origin of profunda by Acting Assistant Surgeon Moon, 9th; died, 12th March, 1865.

Contributed by Acting Assistant Surgeon J. T. Goddard.

4085. A wet preparation of the femoral artery, three days after ligation below the profunda for secondary hæmorrhage
b. 36. following gunshot. The specimen shows the popliteal to have sloughed after puncture by a bony spicula.

First Lieutenant A. M. B., "A," 26th Virginia (Rebel): femur fractured in the lowest third by a pistol ball, Burk's Station, Va., 6th April; femoral ligated for secondary hæmorrhage, City Point, Va., 17th; died from mortification of limb, Washington, 20th April, 1865.

Contributed by Acting Assistant Surgeon G. K. Smith.

See 4084, **XIII.** A. B. b. 3; 554, URINO-GENITAL ORGANS, *Medical Series.*

2085. A wet preparation of the left femoral artery, ligated below the origin of the profunda for secondary hæmorrhage.
b. 37. Private B. A., "A," 5th Iowa, 40: a conoidal ball passed through Scarpa's triangle without directly injuring the vessels, Vicksburg, 19th May; admitted hospital, Memphis, Tenn., 27th; hæmorrhage checked by compression, 31st May; wound opened and a darning needle extracted from the sheath of the vessels, 2 p. m., secondary hæmorrhage and artery ligated, 8 p. m., died, 11 p. m., 1st June, 1863.

Contributed by Acting Assistant Surgeon A. W. Nelson.

See 2020. **XVIII. III.** B. B. b. 1.

3983. A wet preparation of portions of the external iliac, the femoral, profunda and anastomotica magna arteries, with
b. 38. the femoral ligated in its continuity for secondary hæmorrhage.

Private H. L., "A," 6th Pennsylvania Reserves, 25: tibia and fibula fractured in the middle third, Antietam, 17th September; amputated in the upper third of the leg, 4th December, 1862; amputated at the junction of the lower thirds of the femur by Surgeon J. B. Lewis, U. S. Vols., 15th January; femoral ligated for secondary hæmorrhage, 4th February: one and a half inches necrosed extremity of the femur removed, 5th March; died, 31st March, 1863.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

See 3818, **XIII.** A. B. f. 61; 748, **XV.** A. B. d. 119.

1024. A wet preparation of the femoral artery, ligated in the lowest third for secondary hæmorrhage from sloughing
b. 39. of tibialis posticus after gunshot.

Private S. B., "G," 134th New York, 16: accidentally wounded posterior middle third left leg, 30th August; admitted hospital, Alexandria, 5th September; profuse secondary hæmorrhage controlled by pressure, 14th November; femoral ligated for hæmorrhage by Assistant Surgeon W. A. Conover, U. S. Vols., 28th November; died from pyæmia, 7th December, 1862.

Contributed by the operator.

507. A wet preparation of a portion of the femoral artery, after ligation for secondary hæmorrhage following
b. 40. amputation.

A. S., "F," 10th New York.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

3971. A wet preparation of the right femoral and profunda, ligated for secondary hæmorrhage. The specimen shows
b. 41. the ligature upon the femoral intact above the seat of sloughing.

Private J. S., "A," 4th Virginia, (Rebel,) 22: femur fractured by a conoidal ball in the middle third, Monocacy Junction, Md., 9th July; femoral ligated at point of bleeding, 5th August; profunda ligated for recurrent hæmorrhage, 6th August, 1864; commencing gangrene and death six hours afterward.

Contributed by Acting Assistant Surgeon Coover.

See class **XXIII.** A. C.

1098. A wet preparation of the popliteal artery, which appears to have sloughed above the point of ligation.
b. 42. Contributed by Surgeon H. S. Hewit, U. S. Vols.

2611. A wet preparation of the anterior tibial artery, ligated above and below a point of sloughing for secondary
b. 43. hæmorrhage, after hospital gangrene following a resection in the shaft of the left fibula.

Private E. H. B., "K," 1st Michigan Cavalry, 39: fibula fractured, Gettysburg, 3d July; excision performed at Cavalry Corps Hospital; admitted hospital, Philadelphia, 8th September; hospital gangrene occurred, 18th; secondary hæmorrhage to the extent of three pints, operation and death, 18th October, 1863.

Contributed by Acting Assistant Surgeon J. H. Jamar.

894. A wet preparation of the internal iliac artery, ligated for secondary hæmorrhage.
b. 44. Contributed by Acting Assistant Surgeon W. W. Keen, jr.

2481. A wet preparation of the common carotid artery, ligated one inch below the bifurcation, with the formation of a
b. 45. clot on the cranial aspect. The external carotid is pierced by a pin, the presence of which is unexplained.

Private J. R. "B," 63d New York: inferior maxilla fractured, Wilderness, 5th May; admitted hospital, Washington, 13th; carotid ligated, 31st May; died, 1st June, 1864.

Contributed by Surgeon G. L. Pancoast, U. S. Vols.

See 2482, **II.** A. B. b. 7.

897. A preparation of the femoral artery, after ligation in its continuity, as if for secondary hæmorrhage. An extensive
b. 46. solution of its coats appears an inch and a half below the point of operation. Above and below the ligature, which has nearly ulcerated through the artery, firm clots have formed.

Contributor and history unknown.

906. A portion of a small artery, accompanied by the veins. It has been opened by ulceration near one extremity.
b. 47. A memorandum describes it as ligated, but the point of operation is not discernable.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

1004. A small section of the femoral and profunda arteries, after ligation. A clot, plugging the femoral, is exposed
b. 48. where the artery has been cut through by a ligature. Another ligature remains on the profunda at its origin, where also a clot has been formed.

Contributed by Acting Assistant Surgeon G. F. Shrady.

2220. An arterial preparation, received without history. It is believed to be the femoral artery, ligated just below the
b. 49. origin of the anastomotica magna, (where it narrows more rapidly than is common,) which, in this case, arises very near to the profunda. The chief point of interest in the specimen is this peculiar origin.

Contributed by Acting Assistant Surgeon J. Leidy.

See class **XVIII. II.** D.

2225. A wet preparation of an artery, with no history. The specimen appears to be the brachial cut through by a
b. 50. ligature just above the bifurcation. An opening in its walls below the anastomotica magna may have been the cause of death. A ligature is loosely placed about the vessel in the middle of its course, as if to indicate where the second operation should have been performed.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

2384. An arterial preparation, apparently of the external iliac, ligated just below the epigastric, which, in the specimen,
b. 51. has been cut off close to the main trunk.

Contributor and history unknown.

509. A wet preparation of a portion of the femoral artery, showing a false aneurism, the size of a walnut, following
b. 52. gunshot.

Second Lieutenant R. W. S., "I," 5th Pennsylvania Reserves: Second Bull Run, 30th August; admitted hospital, Washington, 5th September; artery reported ligated, 7th; died, 8th September, 1862.

Contributed by Assistant Surgeon Warren Webster, U. S. Army.

For other illustrations of this class, see 3542, **II.** A. B. b. 12; 2124, **IV.** A. B. b. 42; 2787, **VII.** A. B. g. 3; 2700, **VIII.** A. B. d. 13; 272, **VIII.** A. B. d. 15; 993, **IX.** A. B. f. 28; 758, **XII.** A. B. a. 7; 3098, **XII.** A. B. e. 2; 81, **XII.** A. B. e. 7; 1757, **XIII.** A. B. a. 26; 915, **XIV.** A. B. g. 1; 2576, **XVIII. II.** A. B. a. 2.

C. Ligated after Division.

2687. A wet preparation of the brachial artery, nearly sloughed across above the ligated extremity after amputation.
c. 1. On each side of the point of ulceration the artery is healthy.

Private G. K., "E," 40th New York, 29: fracture of elbow, and arm amputated middle third, Wilderness; admitted hospital, Washington, 26th May; death from secondary hæmorrhage, 26th June, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

1386. A wet preparation of the brachial artery, two days after amputation for secondary hæmorrhage. A clot has
c. 2. formed.

Private A. C., "C," 8th Illinois Cavalry, 27: carbine ball entered above the wrist and lodged near the elbow, Upperville, Va., 21st June; admitted hospital, Washington, 24th June; secondary hæmorrhage, controlled by pressure, and ball removed, 3d July; after several hæmorrhages, controlled by pressure, arm amputated by Acting Assistant Surgeon McCoy, 9th; died, 11th July, 1863.

Contributed by the operator.

See 1387, **VIII.** A B. a. 2.

2616. A wet preparation of portions of the left brachial, radial and ulnar arteries, after death from pyæmia three
c. 3. weeks after amputation at the junction of the upper thirds of the forearm for secondary hæmorrhage from the radial following gunshot of the metacarpus and gangrene. The radial is designated in the specimen by a piece of silk thrown lightly around it. The ligatures have all been removed and the extremities are sealed, but in each branch, a short distance above its termination, a small opening, as if from ulceration, occurs.

Private J. G. K., "G," 75th Pennsylvania, 42; Gettysburg, 1st July; admitted hospital, with left middle finger and its metacarpal bone removed, and hospital gangrene present, Philadelphia, 9th; gangrene disappeared, and an abscess in the wrist opened, 15th; slight hæmorrhages, 18th–19th; hæmorrhage from the radial, which was ligated at both extremities, 24th; hæmorrhage recurred and forearm amputated, 29th July; ligatures came away, 7th–9th August; slight hæmorrhage and symptoms of pyæmia, 14th; died, 19th August, 1863.

Contributed by Acting Assistant Surgeon M. Lampen.

See 2773, **IX.** A. B. c. 2; 2615, **XXI.** A. B. b. 1.

See class **XXII.** A. B.

853. A wet preparation of the right femoral artery, nine days after amputation in the upper third.
c. 4. Private M. S., "B," 61st New York, 20: femur contused, Antietam, 17th September; admitted hospital, Frederick, 24th September; ball removed from against femur, 20th October; thigh amputated by Surgeon H. S. Hewit, U. S Vols., 15th November; died, 24th November, 1862.

Contributed by the operator.

2883. A wet preparation of the femoral artery, ligated for secondary hæmorrhage after amputation.
c. 5. Private L. W., "C," 26th Michigan, 23: knee fractured, Spottsylvania C. H., 12th May; admitted hospital, Washington, 30th May; thigh amputated upper third; secondary hæmorrhage from stump, artery secured by Acting Assistant Surgeon Ansell, and patient died, 19th July, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

2509. A wet preparation of the femoral artery, apparently after amputation in the upper third. The ligature remains
c. 6. in the specimen.

Contributed by Assistant Surgeon Wm. Thomson, U. S. Army.

874. A wet preparation of the right femoral artery, thirty-three days after ligation at the place of amputation. The
c. 7. extremity of the vessel is perfectly closed.

Private W. H. McP., 50th Georgia (Rebel): lowest third of right thigh fractured, South Mountain, 14th September; amputated middle third by Dr. Boyle, (Rebel,) Frederick, 24th September; died, exhausted, 27th October, 1862.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

4224. The femoral vessels, after amputation in the middle third of the thigh and excision of the greater part of the remainder
c. 8. of the shaft of the femur. A conical clot, two and a half inches long, with the base uppermost, extends to the first small branch. When fresh the clot was of a light brownish or pink color. Below the profunda the femoral vein was much narrower, with thick walls terminating in a cord. The internal saphenous vein is pointed and corded at the extremity. The sciatic nerve, slightly clubbed at the extremity, is attached.

Private J. G., "D," 15th New York, 28: left thigh amputated at the middle third on the field, Cedar Creek, 19th October; admitted hospital, Baltimore, 26th October; the femur, nearly to the trochanter major, was removed by Surgeon Z. E. Bliss, U. S. Vols., 30th December, 1864; died from exhaustion, 4th February, 1864.

Contributed by Assistant Surgeon Geo. M. McGill, U. S. Army.

See class **XVIII. III.** A B. a.

1595. A wet preparation of the femoral vessels, from a case of death from pyæmia after amputation in the middle third.
c. 9. The artery contains a clot, the lower part of which is honeycombed, with a patulous sac below. The vein contained a clot to the profunda, black and loose below.

Private N. M. H., "B," 94th New York: thigh fractured, Hatcher's Run, Va., 7th February; amputated in the middle third, 8th; admitted hospital, Baltimore, 11th February; died from pyæmia, 4th March, 1865.

Contributed by Acting Assistant Surgeon J. G. Keller.

See 1504, **XIX.** C. B. b. 1.

871. A wet preparation of a portion of the femoral artery, eleven days after amputation at the junction of the lower
c. 10. thirds. A clot has formed for half an inch.

Private J. M. M., "E," 27th Georgia, (Rebel,) 22: femur fractured in the lowest third, 17th September; amputated, Frederick, 10th October; died, exhausted, 21st October, 1863.

Contributed by Acting Assistant Surgeon North.

See 779, **XIII.** A. B. b. 59.

873. A wet preparation of the femoral artery, fifteen days after amputation, well closed, but the clot evidently softening
c. 11. at the time of death.

Sergeant J. K., 69th New York: fractured knee, Antietam, 17th September; admitted hospital, Frederick, 24th September; amputated at the junction of the lower thirds, 10th October; ligature came away, 21st; died, 25th October, 1862.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

See 790, **XIV.** A. B. f. 32.

4223. A wet preparation of the femoral artery, three months after amputation. A clot, five lines in length, occupies
c. 12. the extremity.

Corporal D. W., "H," 13th Virginia, (Rebel,) 19: admitted hospital, with thigh amputated for gunshot, Cedar Creek, Baltimore, 26th October; four inches of the stump of the femur removed, 30th December, 1864; died from pyæmia, 15th January, 1865.

Contributed by Assistant Surgeon George M. McGill, U. S. Army.

See 4219, **XIII.** A. B. f. 6.

3980. A wet preparation of the femoral artery, fifty-three days after amputation, from death following hospital gangrene.
c. 13. The vessel is completely pervious, as if from breaking down of the clot.

Private J. O. B., "E," 138th Pennsylvania: left knee fractured, 9th July; admitted hospital, Frederick, 10th; thigh amputated, 11th; gangrene commenced, 16th July; death from exhaustion, 1st September, 1864.

Contributed by Acting Assistant Surgeon W. S. Adams.

See class **XXIII.** A. B.

2907. A wet preparation of the femoral artery, five weeks after amputation, from a case of death by pyæmia. There is
c. 14. no coagulum, and the artery is open in several places near the point of ligation.

Private A. J. R., "A," 1st Maine Heavy Artillery, 38: femur amputated in the lowest third for gunshot, Petersburg, June, 1864; admitted hospital, Washington, 28th June; died from gangrene of the stump and pyæmia, 28th July, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

See class **XXIII.** A. B.

1242. A wet preparation of portions of the right femoral artery and vein, from a case of pyæmia.
c. 15. Private J. A. G., "G," 3d Wisconsin: thigh fractured and amputated lowest third, Chancellorsville, 3d May; admitted hospital, Washington, 8th May; died from pyæmia, 9th June, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See 1241, **XIII.** A. B. f. 24.

3968. A wet preparation of the femoral artery, twenty-five days after amputation. The extremity is not closed in the
c. 16. specimen.

Private J. L., "E," 60th Georgia, (Rebel,) 36: admitted hospital, with a conoidal ball lodged near left knee, Frederick, 6th July; thigh amputated lowest third, 15th July; died from pyæmia, 10th August, 1863.

Contributed by Acting Assistant Surgeon Goldsborough.

See 3856, **XIII.** A. B. f. 20; 3987, **XIV.** A. B. f. 186; 3988, **XXII.** A. B. a. 5.

872. A wet preparation of a portion of the femoral artery, twenty-one days after amputation. The vessel has sloughed
c. 17. through in two places near the point of ligation.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

1887. A wet preparation of the left femoral artery, after death from pyæmia following amputation for gunshot. The
c. 18. extremity of the artery is well plugged and shows no abnormity.

Private W. S., "E," 119th Pennsylvania, 40: bones of left leg fractured and anterior tibial artery severed by a conoidal ball, Rappahannock Station, Va., 7th November; admitted hospital, Washington, 8th; amputated in the lowest third of thigh by Assistant Surgeon Geo. A. Mursick, U. S. Vols., 14th November; died of pyæmia, 1st December, 1863.

Contributed by Surgeon John A. Lidell, U. S. Vols.

See 1890, **XIII.** A. B. f. 7; 1888, **XVIII. III.** A. B. a. 6; 1889, **XX.** C. B. 2.

2246. A wet preparation of the femoral and profunda arteries, from a case of pyæmia after amputation in the lowest
c. 19. third. From the profunda to within two inches of its cut extremity the artery was reddened and its inner surface soft and easily removed. The inflammation in the artery is apparently circumscribed, the lower extremity, yet containing the clot following the ligature, being normal in condition. A faithfully colored drawing of the recent case is in the Surgeon General's Office.

Sergeant D. A. B., "B," 99th Pennsylvania: knee wounded and popliteal obliterated, Kelly's Ford, Va., 7th November; admitted hospital, Washington, 9th; amputated in the lowest third of the thigh, 10th; died of pyæmia, 26th November, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See 2247, **XVIII. II.** A. B. a. 19; 3991, **XVIII. III.** A. B. a. 7.

3967. A wet preparation of the femoral artery, after death from pyæmia sixteen days after amputation. The extremity
c. 20. of the artery is not closed by clot.

Private M. F., "L," 21st New York Cavalry, 17: thigh amputated in the lowest third for fracture of the knee, 2d August; died from pyæmia, 18th August, 1864.

Contributed by Acting Assistant Surgeon A. R. Gray.

See 3835, **XIV.** A. B. f. 60.

1892. A wet preparation of the right femoral artery and vein, fifteen days after amputation in the lowest third. The
c. 21. end of the vein is well sealed up, its calibre diminished to the nearest valve and its walls thickened. The mouth of the artery is open. A fragment of an osteophyte is attached to the extremity of the artery.

Private J. N. S., "D," 9th Louisiana, (Rebel,) 27: conoidal ball fractured the lowest third of femur, Rappahannock Station, Va., 7th November; admitted hospital, Washington, 9th; amputated, 18th November; died from secondary hæmorrhage, 19th December, 1863.

Contributed by Surgeon John A. Lidell, U. S. Vols.

See 1860, **XIII.** A. B. f. 29; 1819, **XIV.** A. B. f. 101.

3958. A wet preparation of the lower part of the right femoral, the anastomotica magna and the superior internal
c. 22. articular arteries ten days after amputation in the lowest portion of the femur. There is no clot in the femoral.

Private T. F., "A," 12th Pennsylvania Cavalry: knee fractured by a conoidal ball, Monocacy, Md., 9th July; amputated low down, after hæmorrhage, Frederick, 25th July; died, exhausted after secondary hæmorrhage, 3d August, 1865.

Contributed by Acting Assistant Surgeon W. S. Adams.

See 3812, **XIV.** A. B. f. 130.

868. A wet preparation of the femoral artery, eight days after ligation. The extremity is patulous, but the history is
c. 23. obscure.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

3966. A wet preparation of the femoral artery, five days after amputation in the lowest third of the thigh. The clot is
c. 24. about three-fourths of an inch and well formed. The specimen is suspended by its ligature.

Captain G. M. A., "F," 53d North Carolina, (Rebel,) 36: knee fractured, Gettysburg, 2d July; admitted hospital, Frederick, 6th; amputated in the lowest third, 11th; died, 16th July, 1863.

Contributed by Acting Assistant Surgeon G. M. Paullin.

See 3977, **XIV.** A. B. f. 54.

1989. A wet preparation of a portion of the femoral artery, showing a clot following ligature. The sheath is torn near
c. 25. the seat of the ligature, but the accident appears to have occurred post mortem.

M. A.

Contributed by Surgeon E. Bentley, U. S. Vols.

B. Injuries not caused by Gunshot.

A. Primary Conditions. { a. Not operated upon. b. Ligated in continuity. c. Ligated after division. d. Other operations.

B. Secondary Conditions. { a. Not operated upon. b. Ligated in continuity. c. Ligated after division. d. Other operations.

a. Not Operated Upon.

1640. A wet preparation of the axillary artery, curiously obliterated at the passage of the pectoralis minor. The attached
a. 1. subclavian vein is ruptured. In this subject the humerus and clavicle were comminuted, and the soft parts between the shoulder joint and the sternum pulpified by being crushed between two cars. No pulsation could be felt at the wrist, and sphacelus from the shoulder to the arm occurred.

V. K., laborer in Subsistence Department: railroad accident, and admitted hospital, Washington, 20th July; no operation was performed; died, 23d July, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See 3201, **IV.** B. A. b. 2; 1639, **VI.** B. A. b. 2.

See class **XVIII. III.** B. A. a.

516. A wet preparation of the left hand and forearm, showing a large varicose aneurism of the radial artery near the
a. 2. carpus. There is a tumor the size of a walnut at the seat of injury, and two lesser tumors on the side and back of the forearm, as if caused by the blood enlarging certain capillary and venous passages. The connection with the brachial vein, greatly enlarged, is seen over the palmar surface of the forearm. The case is understood to be the result of a blow at the seat of the aneurism.

Believed to be contributed by Assistant Surgeon Warren Webster, U. S. Army.

See **XVIII. III.** B. B. a.

3964. A wet preparation of portions of the femoral and popliteal arteries, injected with wax. The specimen shows an
a. 3. accidental wound of the artery, made while opening a deep-seated abscess, enlarged by ulceration, from which secondary hæmorrhage occurred.

Private O. H., "F," 61st Georgia, (Rebel,) 34: admitted hospital, with the left femur fractured in the lowest third, 12th July; counter-opening to deep purulent sinuses, 12th November; died from secondary hæmorrhage, 19th November, 1864.

Contributed by Acting Assistant Surgeon Mitchell.

3761. A wet preparation of the popliteal vessels, lacerated by a splinter of wood in a railroad accident. The specimen
a. 4. is not well preserved and shows little.

Corporal J. L. T., "E," 12th Missouri Cavalry, 25: injured, 29th October; admitted hospital, Memphis, 2d November; amputated at the junction of the lower thirds and died, 3d November, 1864.

Contributed by Acting Assistant Surgeon H. C. May.

2721. The innominata artery, with one and a half inches of the common carotid and the subclavian. The subclavian,
a. 5. one-fourth of an inch from the innominata, shows a bayonet injury by which the artery is opened for two-thirds of its circumference.

Unknown soldier: killed at Fort Wagner, S. C.

Contributed by Acting Assistant Surgeon H. K. Neff.

For other illustrations, see 1419, **XXV.** B. A. a. 1.

b. LIGATED IN CONTINUITY.

3597. A dry preparation, injected and colored, of varicose aneurism (aneurismal varix) of the femoral vessels, showing
b. 1. ligations of the left external iliac and common iliac arteries.

Private G. C., "I," 4th New Jersey: admitted field hospital, with an aneurism resulting from a wound by a knife blade inflicted eight years previously, Warrenton, Va., August, 1863; left external iliac tied by Acting Assistant Surgeon J. B. Cutter, Newark, N. J., 6th February; the tumor at first diminished, and then increased until the common iliac was ligated, 17th September; died from peritonitis, 22d September, 1864.

Contributed by Assistant Surgeon C. Wagner, U. S. Army.

See 4628, **XXVI.** A. 2, 74.

C. Diseases.

A. Operated Upon. { a. Primary. b. Secondary.

a. PRIMARY.

4089. A wet preparation of a section of the left subclavian, six days after ligation for secondary hæmorrhage from
a. 1. hospital gangrene. The clot is well shown.

Private D. W. I., "B," 6th Connecticut, 35: Bermuda Hundred, Va., 20th May; admitted hospital, New Haven, Conn., 13th June; subclavian ligated, 18th; died from pyæmia, 24th June, 1864.

Contributed by Acting Assistant Surgeon T. B. Townsend.

See class **XXIII.** A. B.

b. SECONDARY.

3282. A wet preparation of the left external iliac artery, ligated above the origins of the internal epigastric and internal
b. 1. circumflex for arterio-venous aneurism.

Private A. S., "G," 97th Pennsylvania: admitted hospital, with amputation of the left thigh, Alexandria, 11th August; hospital gangrene occurred, September; slight swelling in the groin, 22d; artery ligated for pulsating tumor by Surgeon E. Bentley, U. S. Vols., 26th September; died, 7th October, 1864.

Contributed by Acting Assistant Surgeon W. C. Miner.

B. Without Operation. { a. Primary. b. Secondary.

b. SECONDARY.

3498. A wet preparation of the femoral artery, opened by gangrene, causing secondary hæmorrhage.
b. 1. Contributed by Surgeon Robt. Wm. Pounds.

See class **XXIII.** A. B.

4340. A wet preparation of the femoral artery, opened by gangrene below the profunda, causing secondary hæmorrhage
b. 2. and death.

Private J. I., "L," 21st Pennsylvania Cavalry: flesh wound of thigh by conoidal ball, Amelia Springs, Va., 5th April; admitted hospital, Washington, 16th; attacked with gangrene, 29th April; secondary hæmorrhage, controlled by pressure, and death, 15th June, 1865.

Contributed by Surgeon R. B. Bontecou, U. S. Vols.

See class **XXIII.** A. B.

For other illustrations, see 3454, **XVIII. II.** A. B. a. 9.

D. Peculiar Distributions.

3961. A wet preparation of the left external iliac and femoral and profunda arteries, showing a peculiar distribution of
D. 1. the last-named vessel which is given off immediately below Poupart's ligament. The internal epigastric and circumflex are given off only one-fourth of an inch above the bifurcation.

Private J. M. R., "C," 47th North Carolina, (Rebel,) 29: admitted hospital, Frederick, 18th July; thigh amputated in the lowest third by Acting Assistant Surgeon Paullin, 26th; died, 29th July, 1864.

Contributed by the operator.

For other illustrations, see 4331, **XVIII. II.** A. B. b. 4; 2220, **XVIII. II.** A. B. b. 49.

III. Veins.

A. Gunshot Injuries.

A. Primary Conditions.

a. Not operated upon.
b. Ligated in continuity.
c. Ligated after division.
d. Other operations.

B. Secondary Conditions.

a. Not operated upon.
b. Ligated in continuity.
c. Ligated after division.
d. Other operations.

a. Not Operated Upon.

1055. A wet preparation of a portion of the right internal jugular vein, wounded by a round bullet from spherical
a. 1. case. A part of the parietes of the vein is carried away, and in the posterior portion an orifice is seen, through which the contributor considers the missile passed. A portion of the par vagum was forwarded with the specimen, but was lost at the Museum.

Private H. O., "A," 5th U. S. Artillery: Suffolk, Va., 15th April; died, 19th April, 1863.

Contributed by Surgeon T. H. Squire, 89th New York.

See 1472, **IV.** A. A. b. 1.

2441. A wet preparation of a portion of the right internal jugular vein, after secondary hæmorrhage from gunshot. The
a. 2. specimen shows the point of sloughing, and is occupied by a coagulum two inches below the orifice.

Private S. W. S., "B," 1st New York Dragoons, 23: ball entered two inches below and to the right of the superior angle of the right scapula, passed through the neck and fractured the inferior maxilla, Spottsylvania C. H., Va , 8th May; admitted hospital, Alexandria, Va., 24th; secondary hæmorrhage, arrested by persulphate of iron, 27th May, 1864. Date of death not reported.

Contributed by Acting Assistant Surgeon Jona. Cass.

2008. A wet preparation of a portion of the left femoral vein, from a case of pyæmia after amputation in the middle
a. 3. third of the thigh. The walls are thickened, and the calibre is filled with coagulum.

Private W. S., "C," 7th Virginia, 21: leg fractured by gunshot, Pine Grove, Va., 28th November; admitted hospital, Alexandria, 4th December; thigh amputated in middle third for involvement of knee, 15th December, 1863; died from pyæmia, 6th January, 1864.

Contributed by Acting Assistant Surgeon Jona. Cass.

See 2006 **XIII.** A. B. f. 57; 2007, **XIV.** A. B. f. 188.

3529. A dried preparation of the right femoral and saphenous veins, from a case of pyæmia. Both were occluded with
a. 4. coagula, partially shown, "becoming softened into the yellow dirty fluid so commonly met with and supposed to be pus," which is dried on the walls in the preparation.

Coporal T. K., "H," 2d U. S. Cavalry, 24: wounded in the popliteal space by a bullet which lodged in the femur, 7th May; admitted hospital, with aneurismal thrill at wound, Washington, 11th; amputated in lowest third of thigh, 14th May; died from pyæmia, 4th June, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See 3545, **XIII.** A. B. f. 48; 3579, **XVIII. II.** A. B. a. 21.

1093. A wet preparation of the upper portion of the femoral vein, showing the point of sloughing after gunshot. The
a. 5. orifice is nearly opposite the mouth of the profunda.

Private M. H., "A," 117th Ohio, 21: conoidal ball at short range passed directly through the inner part of the thigh in its upper region, Covington, Ky., and admitted hospital, Cincinnati, 1st April: venous hæmorrhage, 10th, 11th, and 13th; died, 15th April, 1863.

Contributed by Acting Assistant Surgeon E. P. Buckner.

1888. A wet preparation of the left femoral vein, after death from pyæmia following amputation for gunshot. The end
a. 6. of the vein was well sealed in the stump; the vein was empty and collapsed with thickened walls for a distance of six inches; near the mouth of the profunda the vein was filled to distension with fœtid blood; at the mouth of the profunda it was plugged with yellowish white fibrin, and the femoral above it filled with recent coagulum.

Private W. S., "E," 119th Pennsylvania, 40: bones of the left leg fractured and anterior tibial artery severed by a conoidal ball, Rappahannock Station, Va., 7th November; admitted hospital, Washington, 8th; amputated in the lowest third of the thigh by Assistant Surgeon Geo. A. Mursick, U. S. Vols., 14th November; died of pyæmia, 1st December, 1863.

Contributed by Surgeon John A. Lidell, U. S. Vols.

See 1890, **XIII.** A. B. f. 7; 1887, **XVIII. II.** A. B. c. 18; 1889, **XX.** C. B. 2.

3991. A wet preparation of the femoral and saphena veins, from a case of pyæmia after amputation in the lowest third.
a. 7. The femoral vein at the entrance of the saphena was filled with a semi-organized clot, extending through both vessels to within two inches of the stump, rendering them hard, impervious cords, reddened in the fresh subject. A faithfully colored drawing of the recent case may be found in the Surgeon General's Office.

Sergeant D. A. B., "B," 99th Pennsylvania: knee wounded and popliteal obliterated, Kelly's Ford, Va., 7th November; admitted hospital, Washington, 9th; amputated in the lowest third of the thigh, 10th; died of pyæmia, 26th November, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See 2247, **XVIII. II.** A. B. a. 19; 2246, **XVIII. II.** A. B. c. 19.

2094. A wet preparation of the right femoral vein, showing an orifice from gunshot enlarged by sloughing.
a. 8. Private C. C., "A," 30th Iowa: bullet entered between the trochanter major of the left femur and the apex of the coccyx, cut the prostate gland and emerged one inch below Poupart's ligament, right side, Vicksburg, 22d May; admitted hospital, Memphis, 27th May; died, exhausted from numerous small hæmorrhages, 4th June, 1863.

Contributed by Surgeon W. Watson, U. S. Vols.

See 2093, **XX.** A. B. a. 21.

3446. A wet preparation of a portion of the popliteal vein, forty days after amputation, showing the extremity closed
a. 9. by the operation of nature.

Private B G. W., "H," 19th Maine, 19: left leg fractured by a conoidal ball and amputated in the upper third, before Petersburg, 15th October; admitted hospital, Alexandria, 21st October; thigh amputated in the lowest third, from sloughing of stump, 27th November, 1864.

Contributed by Surgeon E. Bentley, U. S. Vols.

See 3445, **XV.** A. B. f. 49; 3447, **XXI.** A. B. b. 6; 3448, **XXI.** A. B. b. 8.

4169. A wet preparation of portions of the femoral and iliac veins. The history of the case is obscure and the specimen
a. 10. in itself unintelligible. It is reported to be from 2285, **XIII.** A. B. b. 159 (which see).

Contributed by Acting Assistant Surgeon George K. Smith.

For other illustrations, see 3794, **XVIII. II.** A. B. a. 11; 3959, **XVIII. II.** A. B. a. 13; 856, **XVIII. II.** A. B. a. 20; 4331, **XVIII. II.** A. B. b. 4; 2568, **XVIII. II.** A. B. b. 6; 4224, **XVIII. II.** A. B. c. 8; 516, **XVIII. II.** B. B. a. 2.

b. LIGATED IN CONTINUITY.

2250. A wet preparation of the left femoral vein, ligated below the entrance of the saphena for the relief of a false
b. 1. aneurism.

Private D. R., "K," 7th Indiana, 20: bullet passed directly through the left thigh from behind, dividing both femoral artery and vein and escaping in Scarpa's space, Robinson's Creek, Va., 30th November; admitted hospital, Washington, 6th December; on examination it was found that there was free communication between the artery and vein in the sac, but no effusion of blood in the tissue, hence, not literally a false aneurism; but, the artery being obliterated and the aneurismal condition increasing, an operation became necessary; the tumor was laid open by Assistant Surgeon W. Thomson, U. S. Army, and were tied (1) the proximal end of the femoral vein near the entrance of the saphena for profuse hæmorrhage, (2) the femoral artery below the origin of the profunda, (3) the femoral artery two inches from the distal extremity, (4) the femoral vein near the distal extremity to control an accidental hæmorrhage, 9th; death followed mortification of limb, 13th December, 1863.

For a full history of this very interesting case, see MS. Catalogue.

Contributed by the operator.

See 2249, **XVIII. II.** A. B. b. 31.

For other illustrations, see 4331, **XVIII. II.** A. B b. 4.

c. LIGATED AFTER DIVISION.

For illustrations, see 790, **XIV.** A. B. f. 32.

B. Injuries not caused by Gunshot.

A. Primary Conditions. { a. Not operated upon. b. Ligated in continuity. c. Ligated after division. d. Other operations.

a. NOT OPERATED UPON.

For illustrations, see 1640, **XVIII. II.** B. B. a. 1.

B. Secondary Conditions. { a. Not operated upon. b. Ligated in continuity. c. Ligated after division. d. Other operations.

b. LIGATED IN CONTINUITY.

2020. A wet preparation of the left femoral vein, pierced by a darning needle.

b. 1. Private B. A., "A," 5th Iowa, 40: a conoidal ball passed through Scarpa's triangle without directly injuring the blood vessels, Vicksburg, 19th May; admitted hospital, with wound in a sloughing condition, Memphis, 27th; hæmorrhage, checked by compression, 31st May; wound opened and needle extracted from the sheath, 2 p. m.; artery ligated for secondary hæmorrhage, 8 p. m.; died, 11 p. m., 1st June, 1863.

Contributed by Acting Assistant Surgeon A. W. Nelson.

See 2085, **XVIII. II.** A. B. b. 37.

C. Diseases.

A. Operated upon. { a. Primary. b. Secondary.

B. Without Operation. { a. Primary. b. Secondary.

b. Secondary.

3118. A wet preparation of the femoral vein, from a case of pyæmia following gunshot contusion of femur. There is no
b. 1. record of the condition of the vein at the autopsy and the specimen presents no peculiarity.

Private J. S., "F," 69th New York: admitted hospital with severe gunshot contusion of femur, Washington, 30th July; femoral artery ligated for secondary hæmorrhage, 5th August; died from pyæmia, 21st August, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

See 3106, **XIII.** A. B. a. 2; 3105, **XVIII. II.** A. B. b. 33.

4061. A wet preparation of portions of the left femoral artery and vein, after death from pyæmia eighteen days after
b. 2. gunshot fracture. The artery is clear. The vein is much enlarged and occluded by a clot, as if an embolus.

Private J. S., "H," 69th New York, 20: conoidal ball fractured lowest third of left thigh, before Petersburg, 25th March; admitted hospital, Washington, 1st April; fragments removed, 8th; died from pyæmia, 12th April, 1865.

Contributed by Acting Assistant Surgeon G. K. Smith.

See 4060, **XIII.** A. B. b. 9.

3974. A wet preparation of portions of the ascending vena cava, right and left common iliac and left internal iliac veins,
b. 3. showing a varicose enlargement of those on the left side of the body. The right common iliac and femoral veins were not enlarged, and there was no assignable cause for the abnormity. From a marked case of tabes mesenterica in the adult.

Private B. V., "F," 10th Virginia, (Rebel,) 44: admitted hospital, Frederick, 12th November; died, 25th November, 1864.

Contributed by Acting Assistant Surgeon J. H. Bartholf.

For other illustrations, see 3794, **XVIII. II.** A. B. a. 11; 2526, **XXV.** C. B. 2.

XIX. INJURIES AND DISEASES OF THE ORGANS OF RESPIRATION,

Including the Hyoid Bone and Pleuræ.

- A. Gunshot Injuries.
  - A. Primary Conditions.
    - a. Without operation.
    - b. Operated upon.
  - B. Secondary Conditions.
    - a. Without operation.
    - b. Operated upon.
- B. Injuries not caused by Gunshot.
  - A. Primary Conditions.
    - a. Without operation.
    - b. Operated upon.
  - B. Secondary Conditions.
    - a. Without operation.
    - b. Operated upon.
- C. Diseases and Malformations.
  - A. Operated Upon.
    - a. Primary.
    - b. Secondary.
  - B. Not Operated Upon.
    - a. Primary.
    - b. Secondary.

XIX. ORGANS OF RESPIRATION.

A. Gunshot Injuries.

B. Secondary Conditions. { a. Without operation. b. Operated upon.

a. Without Operation.

1440. A wet preparation of the larynx, wounded by a battered conoidal ball, which is mounted (as 1440 also) near the
a. 1. specimen. An imitation of the missile rests in the upper portion of the right wing of the thyroid cartilage, where the bullet, which first shattered the inferior maxilla to the right of the symphysis, lodged. The appearance of false membrane, which was not recorded in the hospital notes, is observable in the larynx. No large artery was opened, but the air passages were much congested and swollen. The specimen is noteworthy as illustrative of the length of time life may be preserved under so severe a wound.

Corporal T. A. W., "K," 111th New York, 22: Gettysburg, 2d July; admitted hospital, Baltimore, 15th; died suddenly, 22d July, 1863.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

See 1451, **II.** A. B. b. 5.

See classes **XXVII.** B. B. d.; **XXVII.** B′.

648. A wet preparation of the larynx and the upper rings of the trachea. A pistol ball passed transversely through the
a. 2. larynx, splitting the cartilage of the epiglottis and avoiding the nerves and principal vessels of the neck. The larynx and trachea were much inflamed, and the rima glottidis was closed at the time of death. The specimen is poorly prepared and not at all satisfactory to examine.

Private W. B., "K," 3d Pennsylvania: admitted hospital, Philadelphia, 5th November; died, 12th November, 1862.

Contributed by Acting Assistant Surgeon J. A. Jack.

697. A wet preparation of the larynx and upper part of the trachea. The anterior and upper portion of the thyroid
a. 3. cartilage has been carried away by a bullet which shattered the head of the humerus and the clavicle of the left side and subsequently escaped through the right cheek. The external economy of the larynx is not interfered with.

Private D. B., "I," 22d Massachusetts: Fredericksburg, 13th December; admitted hospital, Washington, 18th December, 1862; died from pleuro-pneumonia and general exhaustion, 14th January, 1863.

Contributed by Medical Cadet Burt G. Wilder.

See 695, **V.** A. B. b. 37; 696, **XIX.** A. B. a. 12.

2021. A wet preparation of the larynx, with the upper portion of the trachea and a section of the supra-hyoid muscles.
a. 4. A bullet that fractured the left side of the inferior maxilla passed through the hyo-glossus, destroyed the epiglottis and emerged on the right side of the neck just below the omo-hyoid. The wounds of the muscles are held open by glass rods. Respiration was carried on through the lower wound, and most of the food escaped through the same orifice.

Private S. C., "C," 44th North Carolina, (Rebel,) 44: Bristoe Station, Va., 14th October; admitted hospital, Alexandria, 15th; died, 19th October, 1863.

Contributed by Acting Assistant Surgeon Norman S. Barnes.

2117. A wet preparation of portions of three ribs of the right side, showing the middle one fractured by a conoidal ball
a. 5. which penetrated the thorax and from which death followed in four days. The missile is suspended outside the jar.

Private F. H., "B," 14th Connecticut: Morton's Ford, Va., 6th February; died, 10th February, 1864.

Contributed by Surgeon Justin Dwinelle, 101st Pennsylvania.

See classes **IV.** A. B. b.; **XXVII.** B. B. d.

2636. A wet preparation, showing sections of the first six ribs of the left side with some pleuritic adhesions. The missile
a. 6. had fractured the left clavicle and the first six ribs near their spinal extremities, emerging near the articulation of the eighth. The lung, wounded in its upper lobe, was only locally effected, but there were general adhesions.

Private C. R., "F," 8th New York Heavy Artillery, 39: Wilderness, 5th May; died, Washington, 21st June, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

See 3460, **IV.** A. B. b. 6.

See class **IV.** A. B. b.

2119. A wet preparation of portions of four ribs, with the two central ones fractured by a conoidal ball which penetrated,
a. 7. slightly wounding the lung. Pleuritic adhesions are observable.

Private C. S., "I," 14th Connecticut, 22: Morton's Ford, Va., 6th February; died, with extensive pleuritic effusion, 28th February, 1864.

Contributed by Surgeon Justin Dwinelle, 101st Pennsylvania.

1722. A wet preparation of portions of the sixth, seventh and eighth ribs of the left side. The seventh rib is fractured,
a. 8. anteriorly to the angle, by a conoidal ball, which entered near the fourth rib, posteriorly to the costal cartilage, and escaped through the wound as seen. The subject received another wound in the left side at the same time. Death followed a month afterward from pleuritis and pericarditis. The specimen shows firm pleuritic adhesions. There was empyema of the left side and hydrothorax of the right.

Private W. L., "B," 6th Ohio Cavalry, 18: admitted hospital, Washington, 12th September; died, 6th October, 1863.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

See 2243, **XVIII. I.** C. B. 1.

See class **IV.** A. B. a.

1142. A wet preparation of the right costal pleura thickly coated with closely adherent lymph. The specimen is stretched
a. 9. over glass.

Private W. T., "C," 33d North Carolina, (Rebel,) 21: a conoidal ball entered the eighth intercostal space, fractured the ninth rib, passed through the posterior part of the right lobe of the liver and rested on the diaphragm, Second Fredericksburg, 3d May; admitted hospital, Washington, 11th; died from pnuemonia, 21st May, 1863.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

See 1141, **IV.** A. B. a. 1.

4184. A wet preparation of the left lung, perforated from above downward by a conoidal ball which entered near the left
a. 10. shoulder and emerged near the eighth dorsal vertebra. The lung was darkly mottled with closely adherent fibrinous layers.

Private J. H. T., "I," 32d Massachusetts, 22: Hatcher's Run, Va., 7th February; admitted hospital, Baltimore, 11th; died, 17th February, 1865.

Contributed by Acting Assistant Surgeon W. G. Smull.

826. A wet preparation of a section of several of the dorsal vetebræ and of eight of the ribs of the left side. A bullet
a. 11. entered the fourth rib near the nipple and escaped through the sixth rib near the spine. The specimen shows that profound pleuritis ensued. A portion of the pericardium is adherent to the wall.

Private J. L., "F," 27th North Carolina, (Rebel,) 22: Antietam, 17th September; admitted hospital, Frederick, 28th October; died from exhaustion following tetanus, 27th November, 1862.

Contributed by Acting Assistant Surgeon Alfred North.

See class **IV.** A. B. a.

696. A preparation of the left lung, showing pleuritis following gunshot when the cavity of the thorax had not been
a. 12. opened. A conoidal ball shattered the left shoulder, chipped the trachea and fractured the right side of the lower maxilla.

Private D. B., "I," 32d Massachusetts: Fredericksburg, 13th December; admitted hospital, Washington, 18th December; died from pleuritis and probably pyæmia, 14th January, 1863.

Contributed by Medical Cadet Burt G. Wilder.

See 695, **V.** A. B. b. 37; 697, **XIX.** A. B. a. 3.

512. A preparation of the right lung and several of the ribs of the right side. A bullet has entered from in front
a. 13. between the first and second ribs, pierced the lung and escaped posteriorly through the sixth rib. The lung is collapsed and solidified, and the pleura intensely thickened after inflammation.

Private W. B., "F," 6th Wisconsin, 18: Second Bull Run, 30th August; admitted hospital, Georgetown, 6th September; died, 21st October, 1862.

Contributed by Acting Assistant Surgeon G. K. Smith.

960. A preparation of a portion of the left lung, with a battered conoidal ball lodged near the apex.
a. 14. Received, without history, from Frederick.

See **XXVII.** B. B. d.

961. A preparation of a lung, with a fragment of bone driven into it by gunshot.
a. 15. Received, without history, from Frederick.

2707. A preparation of the right lung, perforated through the lower lobe by a musket ball which entered to the right of
a. 16. the spinous process of the ninth dorsal vertebra, fractured the transverse process, chipped the eighth rib, fractured the fifth and escaped through the axilla. A glass tube shows the course of the bullet.

Private G. P. L., "F," 4th New York Heavy Artillery, 28: South Side R. R., Va., 2d April; admitted hospital, Washington, 5th; died, 9th April, 1865.

Contributed by Brevet Captain W. F. Norris, Assistant Surgeon, U. S. Army.

See class **IV.** A. B. a.

1714. Portions of the third, fourth and fifth ribs of the left side, with pleuritic adhesions. The fourth rib is fractured
a. 17. by a conoidal ball, which entered the thorax, wounded the lung and escaped through the tenth rib. Pleuritis of the right side also occurred.

Private A. M., "G," 75th Pennsylvania, 39: Gettysburg, 1st July; admitted hospital, Baltimore, 10th July; gangrene set in, 29th August; erysipelas occurred, 3d September; died, 6th September, 1863.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

See classes **XXIII.** A. A.; **XXIII.** A. B.

1855. A preparation of a portion of lung, with a conoidal ball embedded and apparently encysted therein.
a. 18. Believed to be the case of Private W. H., "G," 8th New York Cavalry.

Contributed by Acting Assistant Surgeon W. C. Miner.

See class **XXVII.** B. B. c.

2844. A preparation of a portion of the left lung, perforated by a conoidal ball near the apex. A piece of glass tubing
a. 19. is placed in the wound. Death occurred from fracture of the spine.

Private W. L. B., "I," 21st Georgia, (Rebel,) 22: admitted hospital, Washington, 14th July; died, 15th July, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

See 2843, **III.** A. A. b. 6.

2424. A preparation of the left lung, penetrated by a fractured portion of the eighth rib and perforated by a conoidal
a. 20. bullet which entered the left kidney. The missile entered from behind, fracturing the scapula, and was found after death in the left kidney.

Private H. C. H., "B," 1st Maine Heavy Artillery, 21: wounded, 6th May; admitted hospital, Washington, 22d May; died, 3d June, 1864.

Contributed by Assistant Surgeon J. Cooper McKee, U. S. Army.

See 2423, **IV.** A. B. b. 23; 2425, **XX.** A. B. a. 7.

3348. A preparation of the lower portion of the right lung, perforated by a conoidal ball which entered between the
a. 21. sixth and seventh ribs, and gangrenous.

Corporal J. P., "A," 69th Ohio: Petersburg, 26th June; admitted hospital, Alexandria, 4th July; died, 12th July, 1864.

Contributed by Surgeon E. Bentley, U. S. Vols.

3388. A preparation of the upper half of the left lung, with a conoidal bullet embedded in its substance, partially
a. 22. blocking up the pulmonary vein. The missile entered from above, fracturing the first rib and, partially, the clavicle.

Private A. P., "C," 34th Virginia, (Rebel,) 35: admitted hospital, Washington, 30th October; died from secondary hæmorrhage, 11th November, 1864.

Contributed by Acting Assistant Surgeon J. Fischer.

See class **XVIII. III.** A. B. a.

606. A preparation of the right lung, showing a perforation of the apex followed by ulceration. A bullet entered near
a. 23. the sterno-cleido-mastoideus, three-fourths of an inch above the clavicle, and escaped an inch to the right of the fourth dorsal vertebra. The specimen is badly cut, as if in dissection.

Private V. B. C., "C," 16th Maine: Fredericksburg, 13th December; admitted hospital, Washington, 18th; cough appeared 20th; hæmorrhages from anterior wound until 24th; died, 30th December, 1862.

Contributed by Acting Assistant Surgeon F. P. Sprague.

2808. A preparation of a portion of the lung, wounded by the lodgement of a conoidal pistol ball near the root. In
a. 24. the specimen a model of the bullet is embedded, and the original is mounted near at hand, marked 2808 a.

Private S. L. B., "C," 16th Pennsylvania Cavalry, 28: admitted hospital, Washington, 4th June; died, 4th July, 1864.

Received, without further history, from Emory Hospital.

See class **XXVII.** B. B. c.

1798. A preparation of a portion of the left lung, perforated near its apex by a bullet. This subject also suffered
a. 25. amputation of the left arm for gunshot fracture of the wrist.

Private B. A., "D," 151st Pennsylvania, 19: Gettysburg, 2d July; died from pyæmia, Baltimore, 6th September, 1863.

Contributed by Acting Medical Cadet W. H. Bradley.

See 1796, **XXII.** A. B. c. 9.

2014. A preparation of a portion of the left lung, with a conoidal ball lodged just beneath its surface. The missile
a. 26. entered two inches below the left coracoid process and, passing downward and inward and forward, inpinged against the sternum at the articulation of the second rib, which was found denuded and rough at the autopsy.

Corporal W. S., "H," 151st New York, 26: Locust Grove, Va., 26th November; admitted hospital, Washington, 4th December, 1863; doing well until pleuro-pneumonia set in, 3d January; died, 10th January, 1864.

Contributed by Acting Assistant Surgeon H. G. Elliott.

See class **IV.** A. B. a.

603. A wet preparation of the left lung, showing ulceration of the apex following gunshot.
a. 27. Private W. B. T., "E," 4th Maine: a bullet entered to the left of the seventh cervical vertebra, and was cut out on the field, just behind the right sterno-cleido-mastoideus, opposite the fourth cervical vertebra, Fredericksburg, 13th December; admitted hospital, Washington, 18th; hæmorrhage from the anterior wound and cough appeared, 21st; air issued from posterior wound, 27th; died, 28th December, 1862. The right humerus was fractured near the elbow, also.

Contributed by Acting Assistant Surgeon F. P. Sprague.

See 605, **VII.** A. B. b. 6.

1678. A preparation of the left lung, showing a perforating wound of the upper portion, with a cast of the missile
a. 28. attached. A carbine ball fractured the third rib, and was extracted beneath the angle of the scapula. The bullet is mounted on a stand near by, marked 1678 a.

Sergeant T. C., "I," 1st U. S. Cavalry: Brandy Station, Va., 1st August; admitted hospital and missile removed, Washington, 2d; died with profuse serous effusion from traumatic pleuritis, 7th August, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See class **XXVII.** B. B. d.

3736. A wet preparation of the heart and left lung, with the model of a conoidal bullet in situ, which remained more than
a. 29. four months embedded near the apex of the lung. The specimen shows that neither speedy death nor pneumonia is a necessary consequence of gunshot of lung. The original missile, marked 3736 a, is mounted near by.

Private A. J., "H," 12th New York: ball entered above the right sterno-clavicular articulation, fractured the sternal end of the left clavicle and lodged as seen, Deep Bottom, Va., 16th August; died from empyema of left side, Beverly, N. J., 21st December, 1864.

Contributed by Assistant Surgeon C. Wagner, U. S. Army.

See 3737, **IV.** A. B. b. 5.

See class **XXVII.** B. B. c.

962. A wet preparation of a portion of the right lung, adherent to sections of the third, fourth, fifth and sixth ribs. A
a. 30. round ball has entered between the fourth and fifth ribs and, passing backward, lodged in the lung. The track of the ball is stuffed with cotton in the specimen. "A large abscess existed in the base of the lung and at one point on the margin of the sixth rib, two-thirds of the way back, ulceration occurred, and a piece of cloth protruded through the lung into the pleural cavity."

Received, without further history, from Frederick.

See class **XXVII.** B′. B′.

1315. A wet preparation of portions of the fifth, sixth and tenth ribs, fractured, with perforation of the thorax. The
a. 31. pleura is thickened and adherent.

Private J. McC., "C," 5th North Carolina Cavalry (Rebel).

Contributed by Surgeon G. S. Palmer, U. S. Vols.

See class **IV.** A. B. b.

846. A wet preparation, showing pleural abscess of the right side following a gunshot fracture of the tenth rib.
a. 32. Private S. B., "A," 9th New York State Militia (83d New York): a conoidal ball entered the right thorax, Fredericksburg, 13th December; admitted hospital and ball removed from the ninth intercostal space, the tenth rib being fractured at the angle, Washington, 26th December, 1862; empyema observed, 4th January; pleuro-pneumonia of the left side occurred, 18th; died, 21st January, 1863.

Contributed by Surgeon Henry Bryant, U. S. Vols.

See 579, **IV.** A. B. b. 10; 515, **XIX.** A. B. a. 33.

515. A wet preparation of the right lung, exhibiting intense local pleuritis following gunshot fracture of the thoracic
a. 33. parietes without direct injury of the lung.

Private S. B., "A," 83d New York (9th New York State Militia): a conoidal ball entered the right thorax, Fredericksburg, 13th December; admitted hospital and ball removed from the ninth intercostal space, the tenth rib being fractured at the angle, Washington, 26th December, 1862: empyema observed, 4th January; pleuro-pneumonia of the left side occurred, 18th: died, 21st January, 1863.

Contributed by Surgeon Henry Bryant, U. S. Vols.

See 579, **IV.** A. B. b. 10; 846, **XIX.** A. B. a. 32.

3990. Two fragments of woolen cloth, very loose in texture, the first one inch by one-half in width and the other one-half
a. 34. by one-fourth, discharged by expectoration from the right lung four and a half months after injury.

Lieutenant Colonel J. B. C., 7th Wisconsin: conoidal ball fractured the tenth rib, on the right side, wounded the liver and lodged, Gettysburg, 1st July; specimen expelled, 16th November, 1863. The bullet has not been removed.

Contributed by Acting Assistant Surgeon J. H. Longnecker.

See **XXVII.** B′. B′.

3421. The larynx and upper portions of the trachea and œsophagus. The œsophagus is transversely perforated by a
a. 35. bullet without direct injury to the larynx. At the time of death the glottis was very œdematous and the internal mucous membrane gangrenous.

Corporal P. L., "A," 116th New York: Cedar Creek, 19th October; admitted hospital, Baltimore, 22d; died, 27th October, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

2484. The larynx, upper part of the trachea and surrounding tissues, showing a musket wound of the muscles on the
a. 36. left side of the neck not directly opening the larynx, but apparently entering it through an abscess. The history of this case is very meagre.

Private M. D. D., "D," 169th New York, 36: Cold Harbor, 3d June; admitted hospital, Washington, 7th; died, 10th June, 1864.

Contributed by Surgeon N. R. Mosely, U. S. Vols.

3978. The tongue, pharynx, upper part of the œsophagus and larynx, showing several fistulous openings into the
a. 37. passages following an abscess in the track of a bullet that fractured the inferior maxilla and lodged in the fifth cervical vertebra.

Private J. S., "D," 6th Alabama, (Rebel,) 18: Gettysburg, 1st July; admitted hospital, Frederick; opened abscess in neck, 12th September; died, 28th September, 1863.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

See 3979, **II.** A. B. f. 1; 3985, **III.** A. B. b. 5.

910. A dried preparation of portions of the abdominal aorta, vena cava ascendens and right renal vein, with an
a. 38. elongated bullet, which has injured neither vessel, lodged between the two larger after penetration of the thorax.

The ball fractured the right sixth rib near its middle and passed backward and downward, piercing the diaphragm and passing through the right lobe of the liver, into which organ a spicula of the fractured rib was carried. Hernia of the lung protruded on coughing. The intestines were not wounded, the liver was healthy and there had been no peritonitis. The missile rested against the vertebra, very firmly encysted.

Private J. T., "H," 60th New York: Kenesaw Mountain, Ga., 19th June; admitted hospital, Nashville, 8th July; died, 31st October, 1864. The lungs were filled with unsoftened miliary tubercle.

Contributed by Dr. S. C. Ayres, late Assistant Surgeon, U. S. Vols.

See classes **XX.** A. B. a.; **XXVII.** B. B. d.

616. The lower lobe of the right lung and part of the liver, with a portion of the diaphgram intervening, to which both
a. 39. viscera are firmly adherent. The lung was wounded by the metallic portion of a tompion which was embedded in it.

Private G. M., "C." 13th New Jersey: shot by a comrade in the rear rank, who forgot to remove his tompion, Antietam, 17th September; admitted hospital, Philadelphia, 26th September; died, 15th October, 1862.

Contributed by Acting Assistant Surgeon H. Hart.

See 617, **IV.** A. B. b. 33.

See class **XXVII.** B′. B′.

For other illustrations, see 4092, **IV.** A. B. b. 36.; 3940, **V.** A. B. b. 27; 2884, **XX.** A. B. a. 3; 4575, **XXVII.** B. B. d. 104.

B. Injuries not caused by Gunshot.

A. Primary Conditions. { a. Without operation. b. Operated upon.

a. Without Operation.

299. The hyoid bone, fractured by a rope in execution by hanging. The greater and lesser cornua are separated
a. 1. from the body at their point of junction. Each of the great cornua presents an example of the incomplete or "green stick" fracture about half an inch from its posterior extremity, that of the right side being bent upward and slightly outward and that on the left directly inward The body of the bone is uninjured.

Captain H. W., Rebel: hanged, Washington, 10th November, 1865.

Contributed by Assistant Surgeons Thomson and Allen, U. S. Army.

See 300, **III.** B. A. a. 1; 298, **VIII.** A. B. a. 1; 301, **XXII.** B. A. c. 1; 302, **XXII.** B A. c. 3.

4091. A wet preparation of the larynx, upper part of trachea and lower part of the pharynx and tongue, together with
a. 2. a piece of corned beef one inch in diameter and an inch and a half in length. The subject from whom this specimen was taken was suffocated by the lodgement of the food, partially in the œsophagus and partially in the larynx. The epiglottis was held open by the bolus. The specimen shows the foreign body in the position in which it caused death.

Private ——— ———, "I," 7th Connecticut: a patient in hospital for gunshot wound of the face, who died, New Haven, 2d October, 1863.

Contributed by Acting Assistant Surgeon W. C. Miner.

See 4090, **II.** A. B. f. 2.

B. Secondary Conditions. { a. Without operation. b. Operated upon.

b. Operated Upon.

4080. A wet preparation of the upper portion of the trachea, the cricoid cartilage and larynx, showing the incision made
b. 1. in laryngotomy for suspension of respiration under chloroform.

Private H. B., "C," 38th Georgia (Rebel): elbow fractured, Gettysburg, 1st July; admitted hospital, Frederick, 6th; put under chloroform for excision; respiration ceased, and, not responding to Marshall Hall's method applied half a minute, the larynx was opened by Assistant Surgeon R. F. Weir, U. S. Army, 18th; natural breathing was established, after two minutes' artificial respiration, by compression and relaxation of the thorax and abdomen; died from capillary bronchitis, 27th July, 1863.

Contributed by the operator.

See 3901, **VII.** A. B. a. 2.

C. Diseases and Malformations.

A. Operated upon. { a. Primary. b. Secondary.

a. PRIMARY.

835. A wet specimen of the larynx and upper portion of the trachea, showing laryngotomy performed by the removal
a. 1. of a portion of the cricoid cartilage for acute laryngitis. The adjacent parts are much thickened.

Private N. Y., 2d Maine Battery, 23: (slightly wounded at Antietam;) complained of "sore throat," Frederick, 29th October; crico-thyroid ligament divided, to relieve threatened suffocation, by Acting Assistant Surgeon Redfern Davies, 9.30 p. m., 31st October; small portion of the cricoid cartilage removed upon recurrence of symptoms, 11 p. m.; died, 11. 30 p. m.

Contributed by Assistant Surgeon S. H. Searle, 26th New York, and Acting Assistant Surgeon W. W. Keen, jr.

836. A wet specimen of the larynx, showing laryngotomy through the crico-thyroid membrane for acute laryngitis
a. 2. following typhoid fever. The epiglottis and neighboring soft tissues are infiltrated with plastic euffsion.

Private S. M., "C," 12th U. S. Infantry: suffered from "sore throat" while a patient in hospital, Frederick; breathing becoming much embarrassed, operation was performed by Assistant Surgeon G. L. Porter, U. S. Army, 4 p. m., 5th October, 1862; died, 4.15 p. m. the same day.

Contributed by the operator.

b. SECONDARY.

2513. A wet preparation of the larynx, in which laryngotomy had been performed for relief from an abscess.
b. 1. Private J. L., 1st Veteran Volunteers, 1st Army Corps, 26: admitted hospital with typhoid pneumonia, Washington, 7th April; larynx opened with a bistoury, for apparent œdema glottidis, by Assistant Surgeon W. F. Norris. U. S. Army, 25th April; died from pneumonia, 4th May, 1865.

Contributed by the operator.

B. Not operated upon. { a. Primary. b. Secondary.

b. SECONDARY.

1504. A wet preparation of a small portion of the lung, exhibiting two pyæmic abscesses after amputation of the thigh.
b. 1. Private N. M. H., "B," 94th New York, 21: thigh fractured, Hatcher's Run, Va., 7th February; amputated in the middle third, 8th; admitted hospital, Baltimore, 11th February; died from pyæmia, 4th March, 1865.

Contributed by Acting Assistant Surgeon J. G. Keller.

See 1595, **XVIII. II.** A. B. c. 9.

XX. INJURIES AND DISEASES OF THE ABDOMINAL AND PELVIC VISCERA AND GENITO-URINARY ORGANS.

- **A.** Gunshot Injuries.
  - **A.** Primary Conditions.
    - a. Without operation.
    - b. Operated upon.
  - **B.** Secondary Conditions.
    - a. Without operation.
    - b. Operated upon.
- **B.** Injuries not caused by Gunshot.
  - **A.** Primary Conditions.
    - a. Without operation.
    - b. Operated upon.
  - **B.** Secondary Conditions.
    - a. Without operation.
    - b. Operated upon.
- **C.** Diseases.
  - **A.** Operated Upon.
  - **B.** Without Operation.

XX. ABDOMINAL AND PELVIC VISCERA AND GENITO-URINARY ORGANS.

A. Gunshot Injuries.

A. Primary Conditions. { a. Without operation. b. Operated upon.

a. Without Operation.

1773. The right kidney, through the middle and internal face of which a carbine ball has passed. The twelfth rib was
a. 1. scraped and the stomach, small intestine and liver pierced.

Corporal D. H. M., "H," 6th Pennsylvania Cavalry: Brandy Station, Va., 1st August; died from hæmorrhage en route to hospital, Washington, 2d August, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See 1772, **XX.** A. a. a. 7; 1645, **XX.** A. a. a. 9.

1232. A wet preparation of the liver, perforated by a musket ball.
a. 2. Sergeant A. A. N., "D," 2d Massachusetts: probably Beverly Ford, Va., 9th June; died in ambulance en route to hospital, Washington, 10th June, 1863.

Contributed by Surgeon G. S. Palmer, U. S. Vols.

2213. A portion of the liver, lacerated by the passage of a bullet through
a. 3. it longitudinally. The tissue is exceedingly torn. *See figure* 140.

Private C. F. M., "E," 19th Veteran Reserve Corps: shot by the guard and died in eleven hours.

Contributed by Acting Assistant Surgeon Daniel Weisel.

1646. A portion of the liver, perforated by a conoidal ball which fractured
a. 4. the eleventh rib, perforated the spleen and both kidneys and fractured the third lumbar vertebra

Private W. B., "I," 6th Pennsylvania Cavalry: Brandy Station, 1st August, 1863; died from hæmorrhage from the liver while being transferred to Washngton.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See 1647, **III.** A. a. a. 1; 3291, **IV.** A. b b. 20.

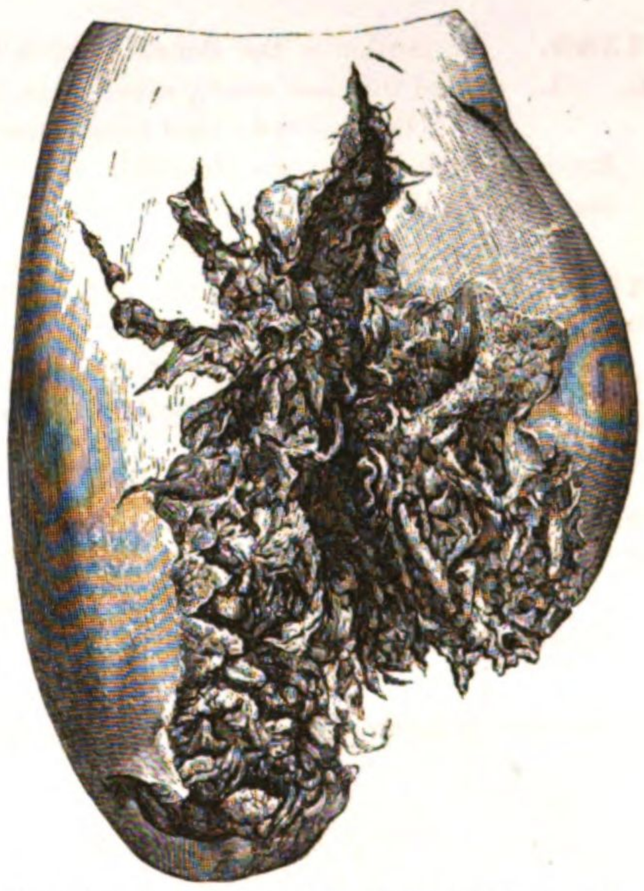

Fig. 140. Liver lacerated by a musket ball. *Spec.* 2213.

3749. The stomach perforated, with two orifices in its greater curvature, by a conoidal ball which entered the cartilage
a. 5. of the eighth and ninth ribs, penetrated the diaphragm, stomach, colon and fourth lumbar vertebra.

Private J. B., "I," 9th Minnesota, 28: wounded and admitted hospital, Nashville, 16th December; died, 17th December, 1864.

Contributed by Acting Assistant Surgeon H. C. May.

See 3748, **III.** A. a. b. 12.

1332. A portion of the greater extremity of the stomach, perforated in two places, through a fold, by a conoidal pistol
a. 6. ball at close range. The ball entered between the seventh and eighth ribs, perforated the diaphragm, stomach, mesentery and second lumbar vertebra, lodging in the muscles of the back. Paraplegia and hæmatemesis followed. Death occurred twenty-one hours after injury.

Private J. McD., "K," 7th Michigan Cavalry: 1st July; died, 2d July, 1863.

Contributed by Acting Assistant Surgeon A. H. Crosby.

See 1331, **III.** A. a. b. 5.

1772. A portion of the duodenum, perforated by a conoidal ball with much loss of substance near its commencement.
a. 7. The missile entered from behind on the right side, scraping the twelfth rib, passing through the right kidney, stomach and left lobe of the liver, and escaped to the left of and below the sternum.

Corporal D. H. M., "H," 6th Pennsylvania Cavalry: Brandy Station, 1st August; received at hospital, dead, Washington, 2d August, 1863.

A profuse and recent hæmorrhage was found on post mortem examination.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See 1773, **XX.** A. a. a. 1; 1645, **XX.** A. a. a. 9.

1231. Two sections of the small intestine, each perforated by a small conoidal ball which is attached. The missile
a. 8. entered in the median line five inches above the pubes and was found lying on the peritoneum. There was much abdominal hæmorrhage.

Second Lieutenant McV., company and regiment unknown: (probably Beverly Ford, Va.;) received at hospital, dead, Washington, 10th June, 1863.

Contributed by Surgeon G. S. Palmer, U. S. Vols.

See class **XXVII.** B. b. c.

1645. The liver, perforated through the left lobe by a carbine ball which scraped the twelfth rib and passed through
a. 9. the right kidney, stomach and duodenum.

Corporal D. H. M., "H," 6th Pennsylvania Cavalry: Brandy Station, 1st August; died from hæmorrhage en route to hospital, Washington, 2d August, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See 1773, **XX.** A. a. a. 1; 1772, **XX.** A. a. a. 7.

b. Operated Upon.

4389. A portion of the ileum, divided longitudinally and stretched upon a glass frame, exhibiting a sewn-up gunshot
b. 1. wound that had nearly severed the intestine to its mesenteric attachment.

W. W., colored: shot transversely through the abdomen; admitted hospital and died, Alexandria, 23d May, 1865.

Received from L'Overture Hospital.

See 4390, **XX.** A. a. b. 2.

4390. A portion of the ileum, exhibiting two gunshot wounds sewn up.
b. 2. W. W., civilian, colored: admitted hospital with gunshot wound of abdomen, from which several feet of intestine protruded, Alexandria, 23d May, 1865; died the same day.

Received from L'Overture Hospital, Alexandria.

See 4389, **XX.** A. a. b. 1.

2560. The left testicle, very badly torn by a conoidal ball and excised. The thigh was also wounded.
b. 3. Private J. E. L., "C," 105th Pennsylvania: excised in the field by Surgeon J. Ebersoll, 19th Indiana; admitted hospital, Washington, 26th May; transferred to Philadelphia, 6th June, 1864.

Contributed by the operator.

For other illustrations, see 3210, **X.** A. a. e. 1.

B. Secondary Conditions. { a. Without operation. b. Operated upon.

a. Without Operation.

3123. A portion of the liver. perforated through the right and left lobes by a musket ball which also passed through the
a. 1. right elbow.

Lieutenant H. I., "B," —— South Carolina, (Rebel,) 38: admitted hospital, Washington, 24th August; died, 26th August, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

2512. An ordinary silver catheter which remained in the bladder but five days, and is deeply encrusted with calcareous
a. 2. deposit for the space of an inch. It illustrates the necessity of frequently changing such instruments.
From the case of Brigadier General C., U. S. Vols.
Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

2884. A portion of the pancreas, with a battered bullet lodged near its head. The missile
a. 3. entered near the left shoulder, fractured the fifth rib and perforated the left lung and the left lobe of the liver. Both lungs and the liver were congested.
Private W. P. B., "A," 44th Georgia, (Rebel,) 22: near Washington, 12th July; admitted hospital, 14th; died, 22d July, 1864.
Contributed by Acting Assistant Surgeon H. M. Dean.
See classes **XIX.** A. B. a.; **XXVII.** B. B. c.

FIG. 141. Spleen lacerated by a musket ball. *Spec.* 3527.

3527. A spleen, lacerated by a musket ball. The bullet entered above the eighth rib,
a. 4. perforated the diaphragm in two places, lacerated the spleen and left kidney and fractured the eighth and ninth ribs. The subject lived two weeks. *See figure* 141.
First Lieutanant M. K., "A," 69th New York, 25: Spottsylvania C. H., 12th May; admitted hospital, Washington, 25th; died, 26th May, 1864.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.

2430. A wet preparation, consisting of parts of the descending aorta and cœliac axis,
a. 5. spleen, pancreas and left kidney. A conoidal ball fractured the eighth rib, perforated the spleen and lodged in the pancreas. Secondary hæmorrhage occurred several weeks after the injury, and the bullet was found post mortem in a pouch it had made for itself by ulceration, opening the splenic artery, between the spleen and pancreas. All the parts are closely adherent from inflammation, and the specimen cannot well be studied without taking it from the jar.
Private J. K., "B," 51st New York: Wilderness, 5th May; admitted hospital, Washington, 25th May; secondary hæmorrhage, 1st June; hæmorrhage recurred daily until his death, 4th June, 1864.
Contributed by Assistant Surgeon J. Cooper McKee, U. S. Army.
See class **XVIII. II.** A. B. a.

FIG. 142. Spleen ruptured by nearly spent unexploded shell. *Spec.* 2113.

2113. A wet preparation of the spleen, in two portions, ruptured by the impact of an
a. 6. unexploded and nearly spent shell rolling against the subject while lying down. A large abdominal abscess followed, and death resulted a month and a half after injury. *See figure* 142.
Private C. G., "B," 26th Illinois: Mission Ridge, 26th November; admitted hospital, Chattanooga, 20th December, 1863; died, 8th January, 1864.
Contributed by Acting Assistant Surgeon C. E. Ball.

2425. A portion of the left kidney, with a conoidal ball embedded in the supra-renal capsule.
a. 7. The missile fractured the eighth rib from behind, penetrated the left lung and lodged as seen. *See figure* 143.
Private H. H., "B," 1st Maine Heavy Artillery, 21: Wilderness, 6th May; admitted hospital, Washington, 26th May; died from pyæmia, 3d June, 1864.
Contributed by Assistant Surgeon J. Cooper McKee, U. S. Army.
See 2423, **IV.** A. B. b. 23; 2424, **XIX.** A. B. a. 20.
See class **XXVII.** B. B. d.

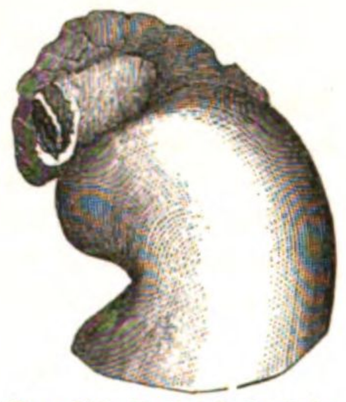

FIG. 143. Bullet lodged in left supra-renal capsule. *Spec.* 2425.

3703. The right kidney, the upper extremity of which has been carried away by a conoidal ball.
a. 8. Private T. W., "B," 127th New York: Pocotaligo, S. C., 9th December; died, Beaufort, S. C., 16th December, 1864.
Contributed by Surgeon John Trenor, U. S. Vols.

1735. A portion of the right kidney, perforated and torn in its lower extremity by a conoidal ball which is mounted with
a. 9. the specimen. When recent the kidney, in a perpendicular section, appeared of a pale pink hue and granular, softened and flabby; the pyramids were almost entirely effaced, except one at the upper extremity, which was of a dark brownish hue and whose tubes were distinct; the pelvis was of a greenish color and its veins were much distended with blood. There was effusion in the right pleural cavity with the deposit of much lymph. An abscess below the caput

coli burrowed down the muscles of the back. It was lined with false membrane, and at its lower part was found a bullet which rested against the sacrum, having in its course perforated the kidneys and fractured the transverse process of the third lumbar vertebra. *See figure* 144.

Sergeant J. A. B., "I," 8th Illinois Cavalry, 29: wounded in the right hypochondrium immediately below the ribs, Madison C. H., Va., 22d September; admitted hospital, Washington, 25th September; died, 6th October, 1863.

Contributed by Assistant Surgeon Geo. A. Mursick, U. S. Vols.

See 1782, **XX.** A. B. a. 13.

See class **XXVII.** B. B. d.

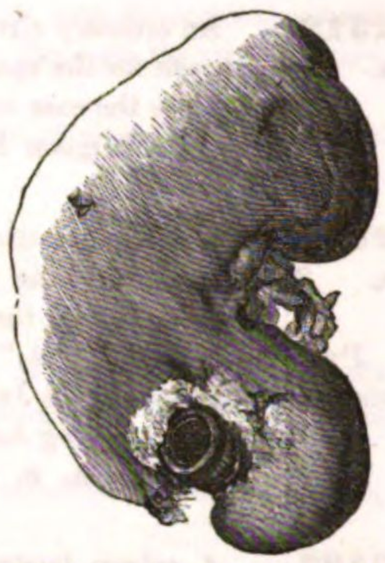

FIG. 144. Right kidney torn by a musket ball. *Spec.* 1735.

3378. **a. 10.** A portion of the duodenum, with half its calibre carried away, at one point, by a conoidal ball which entered the right epigastric region and escaped through the right glutei, notching the ilium.

Private J. M., "F," 14th New Jersey, 27: Winchester, 19th September; admitted Sixth Corps Field Hospital, 20th September; fæces escaped by both wounds for a few days, and afterward per anum; died, 12th October, 1864.

Contributed by Acting Assistant Surgeon W. Leon Hammond.

See 3379, **XX.** A. B. a. 14.

1604. **a. 11.** A wet preparation, showing a portion of the jejunum strangulated by passing through a fissure at the base of Hesselbach's triangle, forming an internal inguinal hernia not perceptible to the touch during life. It followed a wound by a conoidal ball which entered above the external ring and became embedded in the body of the pubes close to the cotyloid cavity.

Corporal J. F., "D," 2d New York Cavalry: Aldie, 17th June; admitted hospital, Alexandria, 18th; died, 25th June, 1863.

Contributed by Acting Assistant Surgeon W. Leon Hammond.

See 1603, **XII.** A. B. b. 21.

1204. **a. 12.** Two portions of the small intestine, each perforated by a carbine ball which passed transversely through the abdomen just above the ilia. The wounds are large and ragged.

Private J. W., 4th Virginia Cavalry, [Mosby's command,?] (Rebel,) 19: wounded, Warrenton Junction, Va., and admitted hospital, Alexandria, 2d May; died from peritonitis, 5th May, 1863.

Contributed by Surgeon Charles Page, U. S. Army.

1782. **a. 13.** A portion of the colon, perforated by a conoidal ball and ulcerated. The missile entered the right hypochondriac region and lodged in the right kidney.

Sergeant J. A. B., "I," 8th Illinois Cavalry, 29: Madison C. H., Va., 22d September; admitted hospital, Washington, 25th September; died, 5th October, 1863.

Contributed by Assistant Surgeon Geo. A. Mursick, U. S. Vols.

See 1735, **XX.** A. B. a. 9.

3379. **a. 14.** The cœcum, perforated just above the valve by a conoidal ball which entered the right epigastric region, wounded the duodenum, notched the ilium and escaped through the right glutei.

Private J. M., "F," 14th New Jersey, 27: Winchester, 19th September; fæces escaped by both wounds for a few days, and afterward per anum; admitted Field Hospital, 20th September; died, 12th October, 1864.

Contributed by Acting Assistant Surgeon W. Leon Hammond.

See 3378, **XX.** A. B. a. 10.

2216. **a. 15.** A portion of the descending colon and anterior parietal walls, showing an artificial anus. A conoidal ball entered the left iliac region, wounded the colon, passed through the posterior portion of the ilium and lodged subcutaneously. The intestine was adherent to the muscular parietes of the pelvis and communicated with an abscess under the iliacus internus and psoas magnus, which cavity communicated with the anterior and posterior openings.

Private J. R. M., "E," 11th Mississippi (Rebel): Gettysburg, 2d July, 1863; died in Baltimore, 12th March, 1864.

Contributed by Surgeon T. H. Bache, U. S. Vols.

See 2214, **XI.** A. B. e. 3; 2217, **XI.** A. B. b. 34.

1926. **a. 16.** A portion of the omentum magnum, in the folds of which is lodged a conoidal bullet slightly misshapen from having glanced against the brass plate of the soldier's waist belt. It is believed that the patient survived about two weeks. *See figure* 145.

Contributor and history unknown.

[It is a matter of regret that the particulars of this unique case have been lost. Any one having cognizance of it is requested to communicate with the Surgeon General.]

See class **XXVII.** B. B. c.

FIG. 145. Conoidal ball held in the folds of the omentum magnum. *Spec.* 1926.

3242. A wet preparation of the right side of a vertical section of the lumbar vertebræ, the superior posterior portion of
a. 17. the ilium and the muscular tissue between these bones. A bullet from the rear has opened the pelvic cavity by entering just to the left and behind the crest of the ilium. A fracture of the vertebræ at the junction with the pelvis exists, but it is apparently the result of accident in taking out the specimen. The track of the wound, through which a glass tube is placed in the specimen, shows the case to have been one embracing a length of time.

Received from the Army of the Potomac.

See class **XXII.** A. B. a.

3752. A wet preparation of the bladder and lower part of the rectum, perforated by a conoidal ball which entered two
a. 18. inches to the left of the coccyx, fractured the ramus of the right pubes and escaped above that bone without opening the peritoneal cavity.

Sergeant H. B., "K," 5th Minnesota, 21: Nashville, 16th December; died from exhaustion, 29th December, 1864.

Contributed by Acting Assistant Surgeon H. C. May.

See 3751, **XI.** A. B. a. 7.

1758. The bladder, with a portion of the right ischium. A ball entered the pubes to the right of the symphysis, passed
a. 19. through the bladder and escaped between the coccyx and spine of the ischium. Spiculæ of bone were removed at times from the bladder. The bladder is greatly contracted and the walls thickened. It was found to be nearly filled by two stones weighing ℥ij, gr. x, and ℥iij, ℈ij, gr. xvij = ℥vj, gr. vij. The calculi are mounted as specimen 2567, **XX.** C. B. 8 (which see).

Private J. M., "H," 101st New York, 19: Second Bull Run, 29th August; died, Washington, 24th October, 1862.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

See class **XI.** A. B. a.

510. The urinary bladder, perforated by a musket ball which entered above and to the right of the pubes and escaped
a. 20. between the coccyx and spine of the ischium. The wound of exit has entirely closed, the walls are very much thickened and the cavity greatly diminished in size.

Private C. W., "H," 24th New York, 20: Centreville, Va., 30th August; admitted hospital, Georgetown, 1st September; died, 13th September, 1862.

Contributed by Assistant Surgeon J. H. Butler, U. S. Army.

2093. The urinary bladder, wounded, with loss of substance, near its neck by a musket ball which entered near the
a. 21. great trochanter of the left femur and escaped through the right femoral region.

Private C. C., "A," 30th Iowa, 24: Vicksburg, 22d May; admitted hospital, Memphis, 27th May; died, 4th June, 1864.

Contributed by Surgeon W. Watson, U. S. Vols.

See 2094, **XVIII. III.** A. B. a. 8.

1789. A wet preparation of several ribs, the stomach, a portion of the omentum and the diaphragm. A hernia of the
a. 22. entire stomach, through an old gunshot wound of the diaphragm, caused death. A consolidated fracture of the ribs is to be observed. The specimen is very rare.

Private C. C., 69th Company, Invalid Corps: admitted hospital, Washington, 11th November; died, 15th November, 1863.

Contributed by Acting Assistant Surgeon H. M. Dean.

See class **IV.** A. B. b.

902. A wet preparation of the penis, perforated through the urethral portion.
a. 23. Contributor and history unknown.

841. A portion of the small intestine, perforated at one point by a small pistol ball. The lips of the wound are everted
a. 24. and thickened and deepened in color. Traces of peritonitis remain. The solitary follicles and villi are enlarged, as if the subject were suffering under intestinal disease when wounded.

Received, without history, from Post Hospital, Richmond, October, 1866.

Contributed by Acting Assistant Surgeon R. Thomain.

For other illustrations, see 3975, **XI.** A. B. b. 22; 545, **XII.** A. B. a. 5; 1183, **XII.** A. B. b. 3; 1391, **XII.** A. B. b. 29; 3864, **XII.** A. B. c. 6; 1594, **XIII.** A. B. a. 29; 305, **XIII.** A. B. b. 88; 763, **XIII.** A. B. b. 129; 910, **XIX.** A. B. a. 38; 4628, **XXVI.** A. 2, 65, 81, 97; 4629, **XXVI.** A. 3, 105; 4489, **XXVII.** B. a. c. 7.

b. Operated Upon.

88. A fragment of an iron hand grenade, encrusted with the earthy phos-
b. 1. phates, two inches in length, seven-eighths of an inch in width and three-eighths of an inch in thickness, weighing two ounces and five grains troy, removed by lithotomy nine months after injury. The wound of entrance was nearly closed at the time of the operation. *See figure* 146.

Private C. L, "A," 23d Indiana, 32: the missile entered the right nates two inches from and parallel with the end of the coccyx, Vicksburg, 25th June; admitted hospital, Jefferson Barracks, Mo., 5th August, 1863; removed by Surgeon John F. Randolph, U. S. Army, 2d April, 1864. Recovered.

Contributed by the operator.

See 4628, **XXVI.** A. 2, 88.

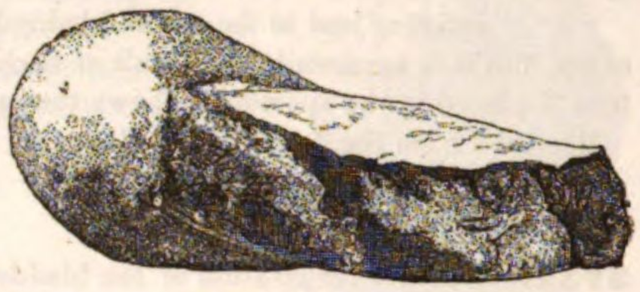

FIG. 146. Fragment of grenade, encrusted with phosphates, succesfully removed from the bladder. *Spec.* 88.

For other illustrations, see 4712, **XX.** C. A. 6; 4417, **XXVII.** B. B. c. 62; 4394, **XXVII.** B. B. d. 78.

B. Injuries not caused by Gunshot.

A. Primary Conditions. { a. Without operation. b. Operated upon.

a. Without Operation.

See 2997, **VI.** B. A. b. 3; 2977, **XI.** B. A. b. 1; 2991, **XIII.** B. A. c. 2.

B. Secondary Conditions. { a. Without operation. b. Operated upon.

a. Without Operation.

2258. The stomach, perforated by a bayonet, in two places, (through a fold,) near the cardiac extremity.
a. 1. Private J. W., "B," 5th New York Heavy Artillery, 24: wounded and admitted hospital, Baltimore, 15th March; died from traumatic peritonitis, 18th March, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

See 2259, **XX.** B. B. a. 2.

2259. A portion of the jejunum, perforated by a bayonet (making two wounds). Fæces and an ascaris lumbricoides
a. 2. passed into the abdominal cavity.

Private J. W., "B," 5th New York Heavy Artillery, 24: wounded and admitted hospital, Baltimore, 15th March; died from traumatic peritonitis, 18th March, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

See 2258, **XX.** B. B. a. 1.

3461. A wet preparation of the pubic bones and adjacent tissues, exhibiting a double inguinal hernia. On the left side
a. 3. it is very large and appears to have been strangulated.

Case of a Teamster, contributed, without history, by Dr. N. Lincoln, of Washington.

903. A wet preparation of a large and very old inguinal hernia of the right side which had become scrotal. Two
a. 4. distinct and large loops of the small intestine are embraced, each of which is impermeable from inflammatory action which has covered and agglutinated the entire specimen and is evidently of long standing. Rods are passed in the bowel to show the strictures. Openings between contiguous portions must have occurred at two places, to agree with the the history. Unfortunately, the whole of the specimen was not preserved.

F. B., (colored,) 70: admitted hospital, Alexandria, 22d May; made no complaint of the hernia; "on the 26th diarrhœa supervened, over which appropriate remedies seemed to exercise little or no controlling influence, and he sank; died, May 28th 1866." *Report of the Ward Surgeon.*

Contributed by Surgeon Edwin Bentley, U. S. Vols.

2919. About twenty-four square inches of integument, from a case of umbilical hernia. "An opening at the umbilicus
a. 5. through the linea alba, with a tendinous margin lined by peritoneum covered by fascia and integument, two inches in diameter, of circular form and rounded edges," was found at the autopsy.

Unknown (colored): admitted hospital, Washington, 16th January, 1866; died the next day.

From Freedman's Hospital, Washington; autopsy by Hospital Steward S. S. Bond, U. S. Army.

b. Operated Upon.

951. A portion of the rib of a rabbit, two inches in length, extracted from the rectum of an officer. It was found lodged
b. 1. transversely just above the sphincter and had remained in the body twelve days.

Contributed by Brevet Lieutenant Colonel Basil Norris, Surgeon, U. S. Army.

C. Diseases.

A. Operated Upon.

1687. A calculus, weighing twenty-three grains, extracted, by lithotomy, four months after a wound of the bladder.
A. 1. Private S. E. P., "K," 16th New York, 27: a conoidal ball passed through his canteen, entered the body near the left inguinal canal and lodged near the right trochanter, Salem Church, Va., 3d May; ball extracted on the fourth day; admitted hospital, Washington, 13th June; fragments of stone that had foreign bodies for neuclei escaped at intervals, and the specimen was removed, by lateral lithotomy, by Surgeon D. W. Bliss, U. S. Vols., 9th September; transferred North, 28th October, 1863. The nucleus appears to be cloth.

Contributed by the operator.

1334. A mulberry calculus, removed by lateral lithotomy.
A. 2. Private J. R., "L," 8th New York Cavalry, 19: suffered symptomatic pains nearly five years, but was not disqualified for work or duty; admitted Field Hospital with typhoid fever, 1st January; admitted hospital, Washington, 22d April; specimen removed by Surgeon D. W. Bliss, U. S. Vols., 29th June, 1863.

Contributed by the operator.

3654. The left testicle, enormously enlarged and excised entire. The organ, when removed, weighed two and a
A. 3. quarter pounds.

W. S., (colored,) 50: removed by Assistant Surgeon S. J. Bumstead, 29th Illinois, Vicksburg, Miss., November, 1864. Recovered.

Contributed by the operator.

See class **XXIV.** C. A. a.

4066. The right testicle, extirpated, two years after the injury, for an abscess following a bruise.
A. 4. Recruit H. D. T., 25th Ohio, 23: hurt by falling, January, 1863; admitted hospital, Alexandria, 4th March, 1865; abscess broke, 23d March; operation performed, 2d April, 1865.

Contributed by Acting Assistant Surgeon A. W. Tryon.

91. A wet preparation of a fibrous intra-uterine polypus, which, in its recent state, was two and a half inches in
A. 5. diameter and three inches in length and protruded through the vulva. Removed, by means of an iron-wire ligature, by Surgeon H. Culbertson, U. S. Vols.; 1861. The growth had not returned in 1862.

Contributed by the operator.

See class **XXIV.** C. A. d.

4712. A calculus, extracted from the bladder, in which it was encysted, more than ten months after gunshot perforation
A. 6. of that viscus. The stone, which is an inch in diameter, was removed by lithotomy from a pouch on the anterior wall of the bladder, formed by a plastic deposit, which facilitated the calcareous accretions, near the wound of entrance. No foreign body was found as a nucleus.

Private R. S. M., "E," Palmetto Sharpshooters (Rebel): Frazer's Farm, Va., 29th June, 1862; a bullet entered the right side of the abdomen, crushed the outer surface of the os pubis, traversed the bladder and escaped through the left buttock between the tuberosity of the ischium and the coccyx; the wound of exit (the lower one) closed in a few weeks; the wound of entrance remained open until the operation; removed by Surgeon J. J. Chisolm, C. S. A., Charleston, 5th May, 1863. Recovered very rapidly.

Contributed by the operator, whose Manual of Military Surgery, pp. 352–3, see for fuller history.

See class **XX.** A. B. b.

4079. The scrotum and one testicle, taken after death from a case of hydrocele. It is presumable that an operation was
A. 7. performed, but the history is worthless and the specimen obscure.

Private J. H. E., "F," 7th Wisconsin.

Contributed by Acting Assistant Surgeon A. North.

2221. A hæmorrhoidal tumor, rather more than an inch in length.
A. 8. Contributed by Surgeon I. Moses, U. S. Vols.

3010. Three prepuces, amputated for syphilis.
A. 9. Contributed by Acting Assistant Surgeon Robert Thomain.

3017. Three prepuces, amputated for syphilis.
A. 10. Contributed by Acting Assistant Surgeon Robert Thomain.

3000. Two prepuces, amputated for syphilis.
A. 11. Contributed by Acting Assistant Surgeon Robert Thomain.

3830. Fragments of urinary calculi, weighing about five hundred and forty grains troy, said to have been removed by
A. 12. the lithotrite, in six sittings, from a clerk in Washington, by Professor Pancoast, of Philadelphia. A preliminary examination shows "its composition to be mainly that of alternate layers of white and hard phosphate of lime and of a reddish and friable mixture of phosphate of lime and urate of ammonia."

Contributed by Brevet Major J. S. Billings, Assistant Surgeon, U. S. Army.

B. Without Operation.

2253. The spleen, showing a metastatic abscess midway in the anterior border. Probably from a pyæmic case.
B. 1. Received, without history, from Emory General Hospital.

1889. A section of the right extremity of the spleen, showing several small superficial metastatic abscesses.
B. 2. Private W. S., "E," 119th Pennsylvania, 40: left leg, Rappahannock Station, 7th November; admitted hospital, Washington, 9th; thigh amputated in the lowest third by Assistant Surgeon Geo. A. Mursick, U. S. Vols., 14th; pyæmia commenced, 20th November; died, 1st December, 1864.

Contributed by Surgeon John A. Lidell, U. S. Vols.

See 1890, **XIII.** A. B. f. 7; 1887, **XVIII. II.** A. B. c. 18; 1888, **XVIII. III.** A. B. a. 6.

4240. A portion of the liver, with numerous metastatic foci, after death from pyæmia following amputation of the left
B. 3. leg crushed by a railroad accident.

Private J. F., "D," 2d Massachusetts, 38: leg crushed by cars and amputated in the upper third by Acting Assistant Surgeon McCay, and admitted hospital, Washington, 7th June; died from pyæmia, 24th June, 1865.

Contributed by Brevet Captain W. F. Norris, Assistant Surgeon, U. S. Army.

3270. A pair of kidneys, presenting the appearance of foci sometimes observed in pyæmia.
B. 4. Contributor and history unknown.

2012. A kidney, from a pyæmic subject. The specimen is torn across the middle, as though in the track of abscesses.
B. 5. Private H. C., "K," 3d Michigan, 33: knee fractured, Jacob's Ford, Va., 27th November; admitted hospital, Alexandria, 4th December; amputated in the middle third by Surgeon E. Bentley, U. S. Vols., 13th December; died from pyæmia, 10th January, 1864.
Contributed by Acting Assistant Surgeon S. B. Ward.
See 2011, **XIII.** A. B. f. 73.

2529. The right kidney, showing several secondary abscesses, from a patient who died of pyæmic pneumonia after
B. 6. contusion of femur.
T. C. C.
Contributed by Surgeon J. A. Lidell, U. S. Vols.
See class **XIII.** A. B. a.

2626. A pair of kidneys. One is opened longitudinally and exhibits a certain amount of fatty degeneration. Nearly
B. 7. all the viscera partook of the same condition.
Corporal W. F., "B," 1st U. S. Colored Troops, 20: gunshot left thigh, probably spring of 1865; died of exhaustion after erysipelas, Baltimore, 20th February, 1866.
Contributed by Assistant Surgeon George M. McGill, U. S. Army.
See 255, **XIII.** A. B. b. 78.

2567. Two large calculi, weighing, respectively, ℥ij, gr. x, and ℥iij, gr. lvij, or, together, ℥vj, gr. vij. These stones
B. 8. were found after death occupying nearly the entire cavity of the urinary bladder in a man who had suffered a gunshot wound directly through that organ, and from which several spiculæ of bone had been removed. The coats of the viscus were exceedingly thickened and contracted.
Private J. M., "H," 101st New York, 19: ball passed through the bladder, Second Bull Run, 29th August; died, Washington, 24th October, 1862.
Contributed by Surgeon D. W. Bliss, U. S. Vols.
See 1758, **XX.** A. B. a. 19.

1061. One testicle, with a cyst of hydrocele attached.
B. 9. Contributed by Acting Assistant Surgeon G. F. Shrady.

1845. A wet preparation of the penis, studded with syphilitic warts. The corona glandis is encircled its whole extent
B. 10. with them. Two small ones are upon the head and several upon the under surface of the organ.
Contributed by Acting Assistant Surgeon T. H. Stillwell.

2102. A wet preparation of a portion of the penis, occupied over the greater part of the head and anterior part of the
B. 11. body by a large cancerous growth.
Received, without history, from Louisville, Ky.
See class **XXIV.** C. B.

3989. A urinary bladder, from the inner surface of which spring numerous polypoid
B. 12. growths of connective tissue almost completely occluding the organ. *See figure* 147.
"It was taken from the body of a child who died with all the symptoms which Jæcksch lays down as those pertaining ammoniæmia." From the private cabinet of the contributor.
Contributed by Surgeon M. Goldsmith, U. S. Vols.

FIG. 147. Polypoid growths on the inner surface of the urinary bladder. *Spec.* 3989.

4667. A small urinary calculus, passed, after three days' frequent micturition,
B. 13. with cutting pains along the membranous portion of the urethra. There were no previous symptoms.
Colonel R.
Contributed by Brevet Lieutenant Colonel Basil Norris, Surgeon, U. S. Army.

587. Fragments of a small urinary calculus of oxalate of lime, passed by an infant eleven months old.
B. 14. Contributed by Dr. Thos. C. Smith, of Washington.

2967. A small portion of the liver, in the upper margin of which is an irregular abscess about the size of a hen's egg.
B. 15. Private J. H., "A," 140th New York: left arm, Gettysburg, 2d July; admitted hospital, Baltimore, 14th; amputated, 28th July; died, 24th August, 1863.
Contributed by Assistant Surgeon D. C. Peters, U. S. Army.
See 1711, **VI.** A. B. f. 13.

XXI. RESULTS OF OPERATIONS EMBRACING THE SOFT TISSUES AND NOT INCLUDING THE VISCERA.

- A. For Gunshot Injuries.
  - A. Primary Conditions.
    - a. After excisions.
    - b. After amputations.
    - c. Other operations.
  - B. Secondary Conditions.
    - a. After excisions.
    - b. After amputations.
    - c. Other operations.
- B. For Injuries not caused by Gunshot.
  - A. Primary Conditions.
    - a. After excisions.
    - b. After amputations.
    - c. Other operations.
  - B. Secondary Conditions.
    - a. After excisions.
    - b. After amputations.
    - c. Other operations.
- C. For Disease.

XXI. RESULTS OF OPERATIONS.

A. For Gunshot Injuries.

B. Secondary Conditions. { a. After excisions. b. After amputations. c. Other operations.

a. EXCISIONS.

958. One and one-fourth inches of the median nerve, excised for neuralgia of the hand following a flesh wound of the
a. 1. arm at the junction of the lower thirds.

Private M. H., "I," 2d U. S. Infantry: Gaines' Mill, 27th June; admitted hospital, Washington, 4th July; excised by Surgeon P. Pineo, U. S. Vols., 17th December; discharged, at his own request, 14th February, 1863. "Always complained of pain in the extremities of the ulnar as well as the median nerve, and while the pain was less in the extremity of the median, after the operation it was the same in the ulnar." * * * "A less amount of the nerve was taken away in this case than in that of Corlis, and the pain, though manifestly less, was not so complete[ly removed?] as when double the amount was removed.

Contributed by the operator.

See 959, **XXI.** A. B. a. 2.

959. Two inches of the median nerve, excised for excessive neuralgia of the palmar portion of the hand and fingers
a. 2. following a flesh wound of the left arm at the junction of the upper thirds.

Private J. H. C., "B," 14th New York (State Militia?): Second Bull Run, 30th August; admitted hospital, Washington, 1st September; excised by Surgeon P. Pineo, U. S. Vols., 9th December, 1862; discharged, at his own request, 14th February, 1863. "A manifest improvement, however, has been in progress since the operation."

Contributed by the operator.

See 958, **XXI.** A. B. a. 1.

1066. The two lower thirds of the right arm, from which three and a half inches of the humerus have been excised in
a. 3. the field. Each cut extremity of the bone has received a full deposit of callus. In the lower portion a sinus extends into the elbow; in the upper, necrosed fragments rest.

Private D. M. G., "K," 1st Pennsylvania Rifles, 25: Fredericksburg, 13th December; excised, 17th; admitted hospital, Washington, 23d December, 1862; hospital gangrene appeared, 10th April; unsuccessfully treated with nitric acid and chlorine; amputated, 20th April, 1863. Recovered.

Contributed by Acting Assistant Surgeon D. Weisel.

See classes **VI.** A. A. c.; **XXIII.** A. B.

684. The left arm, two weeks after an excision of an inch and a half of the middle third. A fragment of bullet remains
a. 4. embedded in the soft parts. The cicatrix of the wound of entrance is seen on the posterior aspect.

E. H. B., company and regiment unknown: Fredericksburg, 13th December, 1862; died, 5th January, 1863.

Contributed by Acting Assistant Surgeon Bannister.

See classes **VI.** A. A. c.; **XXVII.** B. B. d.

3462. The soft tissues of the left shoulder, after an excision of the head of the humerus. The osseous structures have
a. 5. been separately mounted. The bullet appears to have entered at the anterior summit of the shoulder, and to have escaped in the axilla. The operation was performed through a U-shaped incision, which is cicatrized, the specimen appearing to be three or four weeks old. Fistulous openings for the escape of pus appear on the arm.

Contributor and history unknown.

See 2162, **XXI.** A. B. a. 6.

See class **V.** A. B. c.

2162. A wet ligamentous preparation of portions of the left humerus and scapula. The upper extremity of the humerus
a. 6. has been excised to below the tuberosities. The cut extremity of the humerus is diseased. The limb has been supported to such a height that the excised extremity of the bone is more elevated than the humeral head would be normally. The resulting pocket of the joint is diseased by the action of the retained pus.

Contributor and history unknown.

See 3462, **XXI.** A. B. a. 5.

See class **V.** A. B. c.

607. The soft structures of the knee, after excision of the patella. The cicatrix is H-shaped, the horizontal portion
a. 7. being four inches and the upright three inches in length. The integument appears to have sloughed over a large portion of the front of the knee and to have imperfectly cicatrized. On the lateral and posterior portions are the marks of several abscesses.

The history of this case, which is the same as 556, **XIV.** A. B. d. 7, is unknown.

Contributed by Surgeon D. P. Smith, U. S. Vols.

See 556, **XIV.** A. B. d. 7.

600. A wet preparation of the left knee, exhibiting the integument, four weeks after excision and six weeks after injury.
a. 8. The bullet appears to have entered the outer side near the head of the tibia, where the cicatrix is thin and weak.

The operation appears to have been performed by two longitudinal incisions, each of four inches, in the sides, connected anteriorly and midway by a lateral incision of three inches. The cicatrices are firm in their greater extent.

Private C. F. G., "I," 1st Pennsylvania Reserves: probably Second Bull Run, 30th August; admitted hospital, Alexandria, 9th September; excised, 15th September; died, 12th October, 1862.

Contributed by Acting Assistant Surgeon Bannister.

See 629, **XIV.** A. B. d. 6.

b. Amputations.

2615. Five inches of the median nerves from a stump, three weeks after amputation at the junction of the upper thirds
b. 1. of the forearm for secondary hæmorrhage from a wound of the hand. The extremity is divided for an inch, and each termination is slightly expanded and rounded.

Private J. G. K., "G," 75th Pennsylvania, 42: Gettysburg, 1st July; forearm amputated for secondary hæmorrhage, Philadelphia, 29th July; died, 19th August, 1863.

Contributed by Acting Assistant Surgeon M. Lampen.

See 2773, **IX.** A. B. c. 2; 2616, **XVIII. II.** A. B. c. 3.

1117. A bulbous enlargement of the extremity of the median nerve, removed from the stump five months after amputation
b. 2. in the upper third of the humerus. The specimen is half an inch in diameter, but in its present condition it is impracticable to specify how much is nerve tissue.

Private J. B., "G," 97th New York: left arm amputated, Antietam, 17th September, 1862; specimen removed by Surgeon S. D. Freeman, U. S. Vols., Baltimore, 18th February, 1863.

Contributed by the operator.

See 1790, **XXI.** A. B. b. 3.

1790. A bulbous extremity of the median nerve, removed, for the second time, from the upper third of the humerus one
b. 3. year after amputation.

Private J. B., "G," 97th New York: left arm amputated, Antietam, 17th September, 1862; extremity removed by Surgeon S. D. Freeman, U. S. Vols., Baltimore, 18th February; present specimen removed by the same, fall of 1863.

Contributed by the operator.

See 1117, **XXI.** A. B. b. 2.

1176. Four inches each of the median and ulnar nerves, from the left forearm after amputation, exhibiting the extremities
b. 4. bulbous. The median is divided and the ulnar is single. Amputation was performed in the humerus for necrosis of the radius and anchylosis of the elbow.

Private W. J. N., "E," 1st Michigan: hand and wrist fractured, Second Bull Run, 30th August; forearm amputated, Washington, 3d September, 1862; arm amputated, 3d April, 1863. Recovered.

Contributed by Surgeon Thomas R. Crosby, U. S. Vols.

See 1175, **VII.** A. B. f. 58.

See class **IX.** A. A. e.

2087. Four inches of the sciatic nerve, five days after amputation. The specimen presents no remarkable appearance,
b. 5. excepting that the lower end is somewhat ragged, as though torn.

Contributed by Surgeon J. Dwinelle, 106th Pennsylvania.

See 2115, **XIII.** A. B. f. 10.

3447. A nervous trunk, from a leg stump, believed to be the saphenous, forty days after amputation. The extremity is
b. 6. somewhat irregular.

Private B. G. W., "H," 19th Maine, 19: left leg amputated in the upper third, Petersburg, 15th October; thigh amputated for sloughing stump, Alexandria, 27th November, 1864.

Contributed by Surgeon E. Bentley, U. S. Vols.

See 3445, **XV.** A. B. f. 49; 3446, **XVIII. III.** A. B. a. 9; 3448, **XXI.** A. B. b. 8.

3962. Four and a half inches of the saphenous nerve, from a stump of the left thigh. Through the cut extremity is to be
b. 7. observed the remains of a wire ligature, which is not to be confounded with the wires uniting the upper part after an accidental section.

Private W. H. P., "I," 3d ——, 20: ankle fractured, Antietam, 17th September; leg amputated in the middle third; thigh amputated for involvement of the knee, 20th November, 1862; abscess of stump opened, 19th March; died with erysipelas, Frederick, 2d May, 1863. "Patient has frequently complained of pain in the stump, but it is impossible to say whether it was from the abscesses that were forming from time to time or from the irritation of the wire."

Contributed by Acting Assistant Surgeon A. North.

See 3837, **XIII.** A. B. f. 64.

See class **XXIII.** A. A.

3448. A nervous trunk, flattened and expanded, from the stump of the left leg. Believed to be the popliteal, forty days
b. 8. after amputation.

Private B. G. W., "H," 19th Maine, 19: amputated, Petersburg, 15th October; femur amputated, Alexandria, 27th November, 1864.

Contributed by Surgeon E. Bentley, U. S. Vols.

See 3445, **XV.** A. B. f. 49; 3446, **XVIII. III.** A. B. a. 9; 3447, **XXI.** A. B. b. 6.

4244. Amputated portions of the anterior and posterior tibial and musculo-cutaneous nerves, five months after the
b. 9. amputation. The extremity of each is bulbous.

Private W. J. H., "G," 33d Mississippi, (Rebel,) 18: died from chronic diarrhœa, Louisville, Ky., 23d December, 1864.

Contributed by Surgeon R. R. Taylor, U. S. Vols.

See 4243, **XV.** A. B. f. 31.

4197. The stump of the forearm, amputated at the wrist, showing ulceration of the extremity in consequence of
b. 10. insufficient covering. In this case the stump was almost useless from extreme sensitiveness.

Private G. F. M., "B," 39th Massachusetts, 21: Spottsylvania, 10th May; admitted hospital, with stump as exhibited, Philadelphia, 1st October, 1864; reamputated in the middle third of the forearm by Acting Assistant Surgeon James Tyson, 7th January, 1865. Recovered.

Contributed by the operator.

See class **IX.** A. B. e.

2536. The stuffed integument of a stump of the left forearm, eighteen months after amputation. The operation appears
b. 11. to have been circular. The cicatrix is small and firm.

Private W. B., (octoroon,) "A," 29th U. S. Colored Troops, 19: Weldon R. R., September, 1864; died from meningitis, Alexandria, April, 1866.

Contributed by Surgeon E. Bentley, U. S. Vols.

See 2537, **XXI.** A. B. b. 12.

2537. A partially dissected stump of the left forearm, from which the integument has been removed, eighteen months
b. 12. after amputation in the lowest third. All the tissues are normal in appearance and, at the extremity, adhere well to the bones, which are rounded but from which the muscular tissue has been absorbed.

Private W. B., (octoroon,) "A," 29th U. S. Colored Troops, 19: Weldon R. R., September, 1864; recovered from the wound and amputation, and died from meningitis, Alexandria, April, 1866.

Contributed by Surgeon E. Bentley, U. S. Vols.

See 2536, **XXI.** A. B. b. 11.

2672. The soft tissues of the stump of the right forearm, reamputated in the lowest third of the arm, for necrosis of the
b. 13. bones, nine months after amputation in the lowest third of the forearm. The extremity is well rounded, but presents several points of ulceration, and just below the elbow is an opening of more than an inch from the same cause.

Corporal I. M., "B," 184th Pennsylvania, 39: finger wounded and amputated, Cold Harbor, 3d June; admitted hospital, Chester, Penna., 12th; amputated above the wrist, for hospital gangrene, by Acting Assistant Surgeon J. G. F. Strawbridge, 30th June, 1864; amputated in the lowest third of the arm, for necrosis of the bones of the stump, by Acting Assistant Surgeon Geo. S. Stein, 9th April, 1865. Recovered.

Contributed by Brevet Lieutenant Colonel T. H. Bache, Surgeon, U. S. Vols.

See 4170, **VIII.** A. B. f. 10; 551, **XXIII.** A. B. 4.

891. A partially dissected stump of the humerus. The flaps have united, but the extremity presents extensive
b. 14. granulations, as if upon the seat of ulcers. The blood vessels have been injected, showing their extremities closed. Three inches of the end of the bone are encased with a newly formed involucrum, below which the shaft appears necrosed, which disease was the probable cause of the reamputation that has been performed.

Contributed by Acting Assistant Surgeon Goldsborough.

718. The soft tissues of the stump of the right humerus in the lowest third, after death by pyæmia. The flaps have
b. 15. not united by any vital action.

Private G. La F., "E," 26th New York: right elbow fractured by a conoidal ball, biceps of same arm wounded by another bullet and knee joint opened, Fredericksburg, 13th December; arm amputated same day; admitted hospital, Washington, 24th December, 1862; inflammation of the knee, 2d January; died from pyæmia, 14th January, 1863.

Contributed by Surgeon H. Bryant, U. S. Vols.

1268. The stump of the right arm, amputated in the middle third and opened to expose both the soft parts and the
b. 16. humerus. The soft tissues were much swolien and baggy, as if following suppuration, and the extremity is imperfectly united, with indifferent granulations. A ligature remains yet attached. The extremity of the humerus is carious and greatly eroded for several inches by suppuration.

Contributor and history unknown.

4095. The soft tissues, from the stump of the right arm after death by pyæmia following amputation in the upper third.
b. 17. The flaps are partially united.

Private B. C. K., "A," 1st Delaware Cavalry: flesh wound of the arm, wounding the nerves, Edward's Ferry, Va., 15th February; neuroma extirpated, 3d April; arm amputated for neuralgia by Surgeon D. W. Bliss, U. S. Vols., 10th; died from pyæmia, 28th April, 1865.

Contributed by Acting Assistant Surgeon H. E. Woodbury.

See 4038, **XXIV.** C. A. a. 3; 4056, **XXIV.** C. A. a. 5.

4189. A thigh stump, largely healed by granulation, with a yet remaining ulcer, the size of a quarter of a dollar,
b. 18. uncicatrized.

Contributor and history unknown.

621. A well-rounded stump of the thigh, where the skin appears to have sloughed, but which has nearly cicatrized.
b. 19. Four ligatures yet remain attached to the arteries. There is no attainable history.

Contributed by Surgeon H Bryant, U. S. Vols.

3514. The extremity of the left femur and the soft tissues forming the stump, after amputation through the knee joint
b. 20. for fracture of the tibia involving the articulation. The soft parts are imperfect and contracted, showing the traces of ulceration which, rendering the stump impracticable, required reamputation.

Private C. H. R., "A," 36th Michigan: wounded and amputated on the field, Cold Harbor, 3d June; admitted hospital, Washington, 11th June; reamputated by Surgeon J. C. McKee, U. S. Army, 15th December, 1864.

Contributed by the operator.

See class **XIV.** A. A. d.

1740. The extremities of the tibia and fibula, after amputation, with the soft tissues covering the stump. The cicatrix
b. 21. is well marked and the adhesions are firm.

Contributed by Surgeon Meredith Clymer, U. S. Vols.

260. The stump of the left leg, two months after amputation, by posterior flap, in the upper third. The stump is well
b. 22. rounded and the cicatrix firm.

J. T., Negro, 13: admitted hospital with frozen legs, Washington, 22d January; amputated for mortification by Acting Assistant Surgeon A. R. Abbott, 28th January; died from tuberculosis, 28th March, 1866.

Contributed by Dr. S. S. Bond.

See 4701, **XXV.** B. B. b. 6.

4198. Three inches of the stump of the left leg, after amputation in the middle third. Both the tibia and fibula protrude
b. 23. beyond the skin, covered on the extremities with granulations. The stump remained in this condition three months.

Private J. F., "I," 87th Pennsylvania, 20: Winchester, 19th September, 1864; admitted hospital, with stump as shown, Philadelphia, 12th March; reamputated by Acting Assistant Surgeon Jas. Tyson, 22d March, 1865. Recovered.

Contributed by the operator.

2740. The stump of the left leg, nine months after amputation in the middle third. The cicatrix is firm, but there are
b. 24. several fistulous openings in the skin above from which pus has escaped. The bones of the leg are carious, the cancellated structures being much broken down. The soft parts were very unhealthy, abundantly discharging pus.

Private H. S. D., "H," 126th New York, 30: ankle fractured by grape, Gettysburg, 2d July; leg amputated by Acting Assistant Surgeon S. R. Skillern, Philadelphia, 11th July, 1863; amputated in the lowest third of the thigh by Acting Assistant Surgeon R. J. Levis, 24th April, 1864. Recovered.

Contributed by the operator.

2739. b. **25.** The stump of the left leg, after amputation in the lowest third. The soft tissues are softened and have sloughed on the anterior surface, exposing the tibia for a distance of six inches. The fibula remains covered.

Contributed by Assistant Surgeon Geo. A. Mursick, U. S. Vols.

2748. b. **26.** The soft tissues of the stump of the left leg, nineteen months after amputation in the lowest third. The specimen presents numerous cicatrices and fistulous openings, as if of sinuses leading to dead bone.

Private W. M., "I," 72d Pennsylvania, 24: left foot, Antietam, 17th September; leg amputated, 27th September, 1862; thigh amputated in the lowest third by Acting Assistant Surgeon R. J. Levis, Philadelphia, 28th April, 1864; discharged, 3d September, 1864.

Contributed by the operator.

See 4172, **XV.** A. B. f. 50.

2165. b. **27.** A stump, after a modification of Syme's amputation at the ankle. The flaps were taken from the dorsum of the foot in consequence of the laceration of the tissues. The extremity presents an ulcerated surface of the extent of a quarter of a dollar, and the tissues are so delicate from the character of the covering that reamputation was required.

Private G. L., "C," 3d U. S. Artillery, 19: wounded by shell and amputated in the field, 24th September, 1863; amputated at the junction of the upper thirds, Washington, 29th March, 1864. Recovered.

Contributed by Surgeon John A. Lidell, U. S. Vols.

See class **XVI.** D.

3211. b. **28.** A Pirogoff stump, reamputated fifteen days afterward for secondary hæmorrhage. The parts do not seem to have been very well adapted, and the cut surfaces of the tibia and calcis are each softened by suppuration.

Captain J. F. D., C. S., U. S. Vols.: wounded and amputated, by Pirogoff's method, 25th August; reamputated in the lowest third of the leg by Surgeon D. W. Bliss, U. S. Vols., for secondary hæmorrhage, Washington, 10th September; on leave, 25th November, 1864.

Contributed by the operator.

See class **XVI.** D.

2774. b. **29.** The soft tissues of the stump of the arm, apparently reamputated in the upper third for necrosis of the humerus. The amputation seems to have been by flap, and the stump is well formed and fairly united, except where a fistulous opening exists at the extremity.

Contributor and history unknown.

See 656, **VI.** A. B. f. 32.

B. For Injuries not caused by Gunshot.

A. Primary Conditions. { a. After excisions. b. After amputations. c. Other operations.

4713. c. **1.** Two incisor teeth, with their alveolar process removed in an operation for the relief of double hare-lip. The specimen, in its unnatural position, was attached to the root of the nose. A copy of a photograph of the case before the operation, taken at the Museum, stands with the specimen.

C. W., (colored,) 22: successfully operated upon by Brevet Lieutenant Colonel R. Reyburn, Surgeon, U. S. Vols., Washington, 6th November, 1866.

Contributed by the operator.

B. Secondary Conditions. { a. After excisions. b. After amputations. c. Other operations.

b. After Amputations.

1813. The integument, from the stump of the left forearm eleven months after circular amputation in the upper third for
b. 1. fracture of radius and ulna by street cars. The stump is well rounded and the cicatrix firm.

Private T. H., 44th Company, 2d Battalion, Veteran Reserve Corps, 45: while intoxicated fell from the first-story window of the guard-house, comminuting the humerus into the elbow joint, 2d July; amputated, by the circular method, at the junction of the upper thirds, by Assistant Surgeon W. F. Norris, U. S. Army, the same day; returned to duty, 18th August, 1865.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See 3181, **VIII.** B. A. d. 1.

1442. A wet preparation of the left foot, exhibiting amputation in the metatarsus after frost-bite. The stump is ill-shaped
b. 2. and useless. Amputation in the lowest third of the leg was probably performed.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See 1441, **XXIII.** B. D. 2, *from the same case.*

2777. The stumps of the toes of one foot, which were amputated after having been frozen. Granulations where the
b. 3. cicatrix had sloughed are seen in the specimen. The second operation was by Lisfranc's method.

Private G. W., "H," 114th Pennsylvania: frozen on picket, 1st February amputated, Washington, 5th May: reamputated by Acting Assistant Surgeon R. M. Giroin, Philadelphia.

Contributed by the operator.

See classes **XVI.** D.; **XXIII.** B. D.

C. For Disease.

207. The left hand, showing well-rounded stumps of all the fingers amputated at the first joints several years
C. 1. previously for scrofulous disease, according to the patient's account. The thumb nail is enlarged, contracted laterally and curved upon itself like a talon.

F. McK., (mulatto,) 27: died with tuberculosis, Washington, 4th April, 1866.

Contributed by Dr. S. S. Bond.

XXII. INJURIES OF SOFT TISSUES, NOT INCLUDING THE VISCERA.

- A. Gunshot.
  - A. Primary Conditions.
    - a. Integument.
    - b. Nerve.
    - c. Other tissues.
  - B. Secondary Conditions.
    - a. Integument.
    - b. Nerve.
    - c. Other tissues.
- B. Not caused by Gunshot.
  - A. Primary Conditions.
    - a. Integument.
    - b. Nerve.
    - c. Other tissues.
  - B. Secondary Conditions.
    - a. Integument.
    - b. Nerve.
    - c. Other tissues.

XXII. INJURIES OF SOFT TISSUES.

A. Gunshot Injuries.

A. Primary Conditions. { a. Integument. b. Nerve. c. Other tissues.

a. Integument.

1158. A portion of integument from the dorsum of the left foot, showing he wound of entrance made by a grape shot,
a. 1. one and a half inches in diameter, which passed perpendicularly through the tarsus. The wound, the lips of which are slightly everted, seems hardly practicable for so large a missile.

Contributed by Surgeon Meredith Clymer, U. S. Vols.

See 1157, **XVI.** A. B. b. 13; 1159, **XXII.** A. A. a. 2.

1159. A portion of the integument from the plantar surface of the left foot, showing the wound of exit made by a
a. 2. grape shot of one and a half inches in diameter which entered the dorsum of the tarsus. The orifice is rather larger than that of entrance, but does not appear practicable for a missile of that size.

Contributed by Surgeon Meredith Clymer, U. S. Vols.

See 1157, **XVI.** A. B. b. 13; 1158, **XXII.** A. A. a. 1.

1070. A portion of the integument from the outer side of the leg, exhibiting an irregularly ragged shell wound of entrance
a. 3. two by four inches, with much loss of substance. Two inches of the shaft of the fibula was carried away. The inner tuberosity was also wounded by a bullet. Although taken from a case secondary as to cause of death, the specimen does not show any change from a recent condition.

Private W. H., "D," 28th Pennsylvania: probably Chancellorsville, 3d May; admitted hospital, Washington, 7th May, 1863; died from tetanus the same day.

Contributed by Assistant Surgeon C. C. Byrne, U. S. Army.

See 1069, **XIV.** A. B. b. 31; 1071, **XV.** A. B. b. 14; 1068, **XXII.** A. A. a. 4; 1067, **XXV.** A. B. b. 149.

1068. Integument from the inner side of the knee, with a bullet wound of entrance over the inner tuberosity. The
a. 4. orifice is irregularly triangular with a moderate loss of tissue. A severe shell wound was also suffered on the outer side of the leg. Death resulted from a secondary cause, but this wound is essentially primary in its condition.

Private W. H., "D," 28th Pennsylvania: probably Chancellorsville, 3d May; admitted hospital, Washington, 7th May, 1863; died of tetanus the same day.

Contributed by Assistant Surgeon C. C. Byrne, U. S. Army.

See 1069, **XIV.** A. B. b. 31; 1071, **XV.** A. B. b. 14; 1070, **XXII.** A. A. a. 3; 1067, **XXV.** A. B. b. 149.

c. Other Tissues.

1477. The left hand, amputated in the lowest third of the forearm for fracture and laceration by a conoidal ball at the
c. 1. closest range. The charge entered the palmar surface of the middle of the carpus, which it shattered, and passed out through the bases of the first three metacarpal bones. The wound of entrance is discolored by powder.

Private C. H. B., "K," 3d Battalion, 5th New York Heavy Artillery: accidentally, 28th July, 1863; amputated at once by Assistant Surgeon J. T. Smith, 5th New York Heavy Artillery.

Contributed by the operator.

1878. c. 2. The right hand and wrist, primarily amputated in the lowest third of the forearm for injury by the premature discharge of a cannon. The thumb and all the fingers are broken, the index finger is carried away, the outer portion of the metacarpus is shattered and the dorsum of the hand lacerated. The skin is blackened by powder along the edges of the wound.

Private G. E. S., 2d Maine Battery: six-pdr. gun, Washington, 27th November, 1863; amputated the same day; discharged 16th March, 1864.

Contributed by Surgeon N. R. Mosely, U. S. Vols.

1074. c. 3. The two upper thirds of the left leg and the knee, exhibiting a fearful laceration of the soft tissue of the calf by shell.

Contributed by Assistant Surgeon E. J. Marsh, U. S. Army.

4697. c. 4. A dried preparation of the right upper extremity, after amputation by a cannon shot at Antietam. The ball struck the arm at the junction of the lower thirds and shattered the bone, from which, in the specimen, the soft tissues are stripped for two inches. The entire member dried on the field.

Contributed by Hospital Steward A. J. Schafhirt, U. S. Army.

B. Secondary Conditions. { a. Integument. b. Nerve. c. Other tissues.

a. Integument.

953. a. 1. Integument from the left side of the face of a Negro, perforated by a small pistol ball just below the internal commissure of the left eye. The opening is two lines in diameter. Slight sloughing of the contused edges has taken p lace, and a small scale of bone adheres to the inner surface.

Contributed by Assistant Surgeon W. Moss, U. S. Vols.

See 952, **I.** A. B. a. 9; 957, **I.** C. B. b. 8.

1305. a. 2. A portion of integument, showing two wounds, one, clove-shaped, two inches in its greatest length and one in its greatest width, and the other an inch in length, with a prolongation, as if in dissection, by an incision of several inches. The first-named seems to have been the wound of entrance, and the second the one through which a resection of the clavicle was made.

Sergeant J. M. W., "I," 53d Massachusetts, 45: ball entered an inch externally to the sterno-clavicular articulation, fractured the first and second ribs and escaped through the scapula below the anterior portion of its spine, Port Hudson, La., 27th May; admitted hospital, New Orleans, 29th May; fragments removed and clavicle rounded; died, 7th June, 1863.

Contributed by Assistant Surgeon P. S. Conner, U. S. Army.

See 1304, **IV.** A. B. b. 45.

1107. a. 3. A section of integumentary tissue, two by four inches, from the posterior surface of the right arm, exhibiting a crucial wound of exit one by one and a half inches.

Private W. H. F., "H," 7th Ohio, 22: right arm fractured, Chancellorsville, 3d May; admitted hospital, Washington, 6th; amputated, for secondary hæmorrhage, by Surgeon H. Bryant, U. S. Vols., 14th May, 1863.

Contributed by the operator.

See 1106, **VI.** A. B. d. 5.

608. a. 4. A portion of integument from the elbow, torn and ragged, as though the effects of suppuration after fracture and the excision which is said to have been performed. Irregular cicatrices are observable, and the present condition of the specimen appears as the result of the secondary sloughing which necessitated amputation.

Contributed by Surgeon D. P. Smith, U. S. Vols.

See class **VII.** A. B. d.

3988. a. 5. A portion of integument from near the knee, exhibiting a narrow slit-like wound, three-fourths of an inch in length, with slightly inverted and somewhat discolored edges, due to the entrance of a conoidal ball that perforated the femur.

Private J. L., "E," 60th Georgia, (Rebel,) 36: Gettysburg, 2d July; amputated in the middle third of the thigh, Frederick, 15th July; died from pyæmia, 10th August, 1863.

Contributed by Acting Assistant Surgeon Goldsborough.

See 3856, **XIII.** A. B. f. 20; 3987, **XIV.** A. B. f. 186; 3968, **XVIII. II.** A. B. c. 16.

852. A portion of integument from the abdomen, exhibiting a circular wound of entrance one inch in diameter. The
a. 6. original orifice has been enlarged by sloughing. The edges of the wound are discolored and thinned.

Private L. S. P., "E," 3d North Carolina (Rebel): Antietam, 17th September; died, Frederick, 25th October, 1862.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

See 766, **XVI.** A. B. b. 28.

944. Two portions of integument, presumed to exhibit wounds of entrance and exit. They are about the same size,
a. 7. but the first presents greater loss of substance.

Contributed by Hospital Steward A. J. Schafhirt, U. S. Army.

2013. A portion of the integument and connective tissue below the spine of the left scapula, showing an encysted bullet
a. 8. that entered between the acromion and head of the humerus of the same side. Date of injury unknown.

Private W. L.: transferred to 39th Company, 2d Battalion, Invalid Corps, on account of chronic diarrhœa; died of the disease, Washington, 10th January, 1864.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

See classes **XXVII.** B. B. c.; **XXVII. B'.**

892. A portion of integument, exhibiting an oval wound of entrance, three-fourths of an inch long, made by a large
a. 9. round pistol ball on the anterior surface of the middle of the left thigh. The edges are discolored and have slightly sloughed.

Private R. M. B., 2d South Carolina Cavalry, (Rebel,) 28: femur fractured, Frederick, 14th September; died, 7th November, 1862.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

See 769, **XIII.** A. B. b. 138.

899. A portion of integument, said to exhibit a gunshot wound of entrance on the thigh. The specimen seems rather
a. 10. to be of a wound of escape, as if from a small ball. The edges are somewhat puffy and lodged in the orifice is a small fragment of necrosed bone.

Contributed by Hospital Steward A. J. Schafhirt, U. S. Army.

4021. Integument from the right knee, seven weeks after injury. There is loss of substance over an irregular space
a. 11. one and a half inches in diameter, and adjoining it for two by four inches the vitality is diminished, giving rise to irregular minute openings, and shown by blackened borders.

Sergeant M. H. C., "A," 60th New York, 25: Chancellorsville, 4th May; admitted hospital, Washington, 14th June; died, exhausted, 24th June, 1863.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

See 1289, **XIV.** A. B. b. 47.

940. Two portions of integument, understood to exhibit wounds of entrance and exit over the left knee. One is circular,
a. 12. about three-eighths of an inch in diameter, and nearly cicatrized. The other is irregular, an inch in diameter through the muscle, is ragged and appears to have been increased by incision.

Contributed by Hospital Steward A. J. Schafhirt, U. S. Army.

1230. The integument over the left knee, exhibiting wounds of entrance and exit from a conoidal ball, one month after
a. 13. injury. The wound of entrance is irregularly circular, about one inch in diameter, with the edges somewhat inverted and with loss of substance. The wound of exit is two and a half by one and a half inches, having been increased by an incision, is irregular and ragged in form and thinned at the free edges.

Corporal H. J. C., "B," 139th Pennsylvania, 25: Second Fredericksburg, 3d May; admitted hospital, Washington, 8th May; amputated in the lowest third of the femur, 9th June; died, 17th June, 1863.

Contributed by Surgeon J. H. Baxter, U. S. Vols.

See 1229, **XIV.** A. B. f. 109.

1449. The right patella, with the integument, showing a crescentic wound of entrance and the fractured bone. There
a. 14. is another opening in the centre of the specimen resembling a wound of entrance, but probably due to ulceration. The patella was split longitudinally, and a fragment of ball, which is represented in the specimen by a cast, lodged in the bone. The original missile is attached to the jar. The specimen, probably, represents the second or third week.

Contributed by Dr. J. A. Armstrong.

See class **XXVII.** B. B. d.

800. The right patella, shattered by a bullet, and the integument from the left side of the joint, exhibiting the wound
a. 15. of entrance. The wound in the skin is a little more than an inch in length, with slightly inverted edges.

Lieutenant J. W. R., Adjutant, 13th Alabama, (Rebel,) 21: Antietam, 17th September; admitted hospital, Frederick, 1st October; amputated in the middle third of the thigh by Assistant Surgeon C. P. Russell, U. S. Army, 7th; died, 11th October, 1862.

Contributed by the operator.

See class **XIV.** A. B. f.

1185. The integument from the inner side of the right ankle, four weeks after fracture of the malleolus. The specimen
a. 16. is perforated by two bullet wounds about an inch apart and impossible to be distinguished as to entrance or exit. In neither is the tissue much torn, but profuse granulations extend outward over the diameter of an inch and to a prominence of half an inch.

Sergeant H. A., "F," 119th Pennsylvania, 22: Second Fredericksburg, 3d May; admitted hospital, Washington, 8th; amputated, 31st May, 1863. Recovered.

Contributed by Surgeon J. H. Baxter, U. S. Vols.

See 1184, **XVI.** A. B. f. 119.

1127. Integument from over the external malleolus. There is an irregular wound of entrance of two inches, as though
a. 17. made by shell, the posterior border of which is much thickened by inflammatory action.

Contributed by Assistant Surgeon C. C. Byrne, U. S. Army.

See 1126, **XVI.** A. B. f. 104.

900. Integument over the heel, showing the wounds of entrance and exit of a bullet that perforated the calcis. The
a. 18. second is about double the size of the first, and both are irregularly circular.

Contributed by Hospital Steward A. J. Schafhirt, U. S. Army.

For other illustrations, see 1077, **XIV.** A. B. f. 147; 3242, **XX.** A. B. a. 17; 654, **XXII.** B. B. a. 2; 2988, **XXIII.** A. A. 3.

b. NERVE.

4706. Two and a half inches of the ulnar nerve, divided by gunshot. The extremity is irregular and lacerated. From
b. 1. a case of tetanus.

Private R. B. Y., "K," 102d Pennsylvania: forearm and arm wounded by a conoidal ball, Wilderness, 5th May; admitted hospital, Washington, with partial loss of sensibility of hand, 11th; incipient tetanic symptoms, 16th; amputated in the lowest third of the humerus, 17th; died of tetanus, 19th May, 1864.

Contributed by Acting Assistant Surgeon Fred. G. H. Bradford.

3243. The brachial plexus of nerves of the left side, sixty days after perforation by a carbine ball.
b. 2. Captain J. F. J., "B," 13th Virginia Cavalry, (Rebel,) 31: carbine ball passed through the plexus and cut the axillary artery one and a half inches above its termination, Middleburgh, Va, 21st June; died, after hæmorrhage, after separation of ligature for traumatic aneurism, 29th August, 1863.

Contributed by Surgeon John A. Lidell, U. S. Vols.

See 1684, **XVIII. II.** A. B. b. 2.

3538. A portion of the crural nerve, lacerated by a bullet which struck over the lower ribs of the left side and, passing
b. 3. down beneath the femoral vessels, lodged near the femur, causing tetanus.

Private A. F., "F," 31st Maine: Wilderness, 5th May; trismus and opisthotonos appeared, 20th; died, Washington, 21st May, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

3186. Three and a half inches of the posterior tibial nerve, discolored in the specimen and soft and gangrenous when
b. 4. recent. A bullet comminuted the fibula in the middle third, divided the posterior tibial artery and lodged. From a case of tetanus.

Private C. D., "K," 3d New Jersey Cavalry, 40: admitted hospital, Baltimore, 24th August; died of tetanus, 25th August, 1864.

Contributed by Acting Assistant Surgeon B. B. Miles, Curator Jarvis Hospital.

3965. A wet preparation of the nervous trunks, from the stump of the right leg after erysipelas and gangrene. The
b. 5. extremities are all irregularly and raggedly bulbous. There is no account of the recent appearance of this specimen, which is now greatly hardened in alcohol.

Private B. T., "C," 28th Pennsylvania, 33: probably Antietam, 17th September; admitted hospital, Frederick, 19th September; leg amputated, 3d October, 1862; thigh amputated in the lowest third, 14th April, 1863. Recovered.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

See classes **XXIII.** A. A.; **XXIII.** A. B.

C. OTHER TISSUES.

1879. A cyst, containing a conoidal pistol ball extracted (after amputation for another injury) from the popliteal space,
c. 1. where it had remained, beneath the outer hamstring tendons, without inconvenience, two years and one month.

First Sergeant H. M. L., "D," 12th Illinois Cavalry: wounded in Kentucky, October, 1861; leg amputated for fracture by a fall from his horse, Washington, 10th November, 1863.

Contributed by Surgeon N. R. Mosely, U. S. Vols.

See 1744, **XV.** B. B. d. 1.

See classes **XXVII.** B. B. c.; **XXVII.** B′.

1930. A wet preparation of the fascia lata, from the anterior aspect of the lowest fourth of the right thigh, stretched
c. 2. upon a glass frame two and half by five and a half inches. In the specimen, which does not appear to be the whole of the original contribution, the net-work or checkered relation of the fibres is well shown. "At the time of removal the specimen was round, firm, eighteen inches in length and about one-fourth of an inch in diameter. After six days' maceration in alcohol and water it separated in layers and assumed its present membranous appearance." The probe followed the track of the ball twenty inches. The bone was uninjured.

Private T. P., "G," 10th Kentucky, 20: Chickamauga, 20th September; specimen removed by Assistant Surgeon Chas. J. Kipp, U. S. Vols., Nashville, 4th October, 1863; deserted on furlough, 24th January, 1864.

Contributed by the operator.

2218. The little finger of the left hand, amputated through the metacarpal bone. The tissues are somewhat shattered
c. 3. and the joint invaded by pus. After amputation threatened gangrene was averted by internal and external stimulation.

Private L. L., "G," 5th Virginia, 24: Second Bull Run, 30th August; admitted hospital, Washington, 1st September; amputated by Acting Assistant Surgeon A. P. Williams, 8th September, 1862. Recovered.

Contributed by the operator.

See class **XXIII.** A. B.

2267. The ring finger, disarticulated at the metacarpal joint for fracture with laceration in the middle of the member.
c. 4. Contributed by Surgeon A. F. Sheldon, U. S. Vols.

See class **X.** A. B. d.

2610. The ring finger of the right hand, disarticulated at the metacarpus for fracture in the first phalanx. A fragment
c. 5. of lead yet remains lodged in the soft tissues.

Private W. L., "I," 1st Pennsylvania Reserves: Fredericksburg, 13th December, 1862; amputated by Acting Assistant Surgeon E. A. Kœrper, Philadelphia, January, 1863. Recovered.

Contributed by the operator.

See class **X.** A. B. d.

1793. The right thumb, disarticulated for fracture by a conoidal ball. The soft tissues are swollen and discolored.
c. 6. Private J. J., "F," 7th Virginia, (Rebel,) 24: Gettysburg, 2d July; amputated by Surgeon L. Quick, U. S. Vols., Baltimore, 9th July, 1863.

Contributed by the operator.

See class **X.** A. B. d.

503. A wet preparation of the ring finger of the left hand, disarticulated between the first and second phalanges for
c. 7. injury on the outer side, where the bone is roughened by the bullet.

Private J. B., "C," 43d New York: admitted hospital, Washington, 11th July, 1862.

Contributed by Dr. R. C. Croggon.

See class **X.** A. B. d.

1037. The right hand and forearm. The metacarpal bones of the thumb, index and middle fingers were fractured by a
c. 8. musket ball. Pus burrowing among the muscles had disorganized the carpal articulations and denuded the bones of the forearm. The appearance of the specimen, simulating the ravages of hospital gangrene, is due to the careless cutting away of the integument after amputation.

Private J. D. L., "F," 114th Ohio: Vicksburg, 29th December, 1862; admitted hospital, Paducah, Ky., 13th January; amputated in the upper third of the forearm, 15th; died of pyæmia, 18th January, 1863.

Contributed by Surgeon H. P. Stearns, U. S. Vols.

See class **IX.** A. B. c.

1796. The left hand, after amputation in the lowest third of the forearm. The ball entered the dorsum of the hand near
c. 9. the base of the index metacarpal and escaped near the base of the thumb, grazing the os magnum. The specimen shows several openings on the palmar surface of the wrist and forearm, due to the burrowing and escape of pus by its own action.

Private B. A., "D," 151st Pennsylvania, 19: Gettysburg, 2d July; amputated, Baltimore, 24th August: died, 6th September, 1863.

Contributed by Acting Medical Cadet W. H. Bradley.

See 1798, **XIX.** A. B. a. 25.

1083. c. **10.** The left hand, amputated in the lowest third of the forearm for disorganization of the carpo-metacarpal articulation following the impaction of a conoidal ball under the dorsal surface.

Sergeant W. E. B., "B," 15th New Jersey, 28: Chancellorsville, 3d May; admitted hospital, Washington, 8th; amputated by Assistant Surgeon C. A. McCall, U. S. Army, 13th May; discharged, 26th September, 1863.

Contributed by the operator.

See class **IX.** A. B. f.

1905. c. **11.** The left hand and wrist, showing extensive ulceration of their dorsal surfaces following a lacerated shell wound. The first finger and portions of its metacarpal bone were removed on the field. The ulceration extended into and destroyed the carpal articulation.

Private G. W. B., "K," 2d Pennsylvania Cavalry, 26: Spottsylvania, 29th November; admitted hospital, Alexandria, 4th December; amputated below the elbow, 11th December, 1863; discharged the service, 25th April, 1864.

Contributed by Acting Assistant Surgeon Jona. Cass.

2745. c. **12.** The right hand, amputated in the middle of the forearm for secondary hæmorrhage following a lacerated fracture of the carpus. The wound of entrance appears to have been on the palmar surface near the outer side. An opening on the dorsum of the wrist appears caused by the great suppuration.

Private P. McC., "K," 53d Pennsylvania: Spottsylvania, 12th May; amputated, Philadelphia, 7th June, 1864; discharged, 18th February, 1865.

Contributed by Acting Assistant Surgeon M. Lampen.

See class **IX.** A. B. f.

1134. c. **13.** The right foot and lower half of the leg, vertically bisected. A bullet entered the external malleolus and escaped between the fourth and fifth metatarsals, completely shattering the tarsus, as the specimen very clearly exhibits.

Contributed by Assistant Surgeon C. C. Byrne, U. S. Army.

3668. c. **14.** The right foot, after amputation in the lowest third of the leg for opening of the ankle by a deep sloughing ulcer on the inner and anterior side of the tarsus, following a wound by a conoidal ball which probably did not fracture.

Corporal A. H., "F," 3d Delaware, 39: Petersburg, 18th June: admitted hospital, Philadelphia, 20th July; amputated by Acting Assistant Surgeon W. W. Shapley, 10th August, 1864. Recovered.

Contributed by the operator.

See class **XVI.** A. B. f.

1899. c. **15.** The left foot and leg, amputated near the junction of the lower thirds. The specimen has been longitudinally bisected and exhibits a conoidal ball which entered the inner malleolus, embedded in the base of the tibia, resting against the astragalus. The ankle was firmly anchylosed, swollen and excruciatingly painful, and had been so for months. The bullet was supposed, by the patient, to have been removed.

Private L. V. G., "M," 8th Illinois Cavalry: probably Beverly Ford, Va., 9th June; admitted hospital, Washington, 10th June, 1863; amputated by Assistant Surgeon J. C. McKee, U. S. Army, January, 1864. Recovered.

Contributed by the operator.

See classes **XVI.** A. B. f.; **XXVII.** B. B. d.

1034. c. **16.** A wet preparation of the parts adjacent to the left ankle. A ball entered the bottom of the heel, passed through the calcaneum and lodged near the external malleolus. The articular surface of the ankle is eroded by suppuration.

Corporal W. C. M., "D," 80th Ohio: Corinth, Miss., 4th October; admitted hospital, Paducah, Ky., 18th October; amputated in the lowest third, 7th November; died from pyæmia, 13th November, 1863.

Contributed by Surgeon H. P. Stearns, U. S. Vols.

See class **XVI.** A. B. f.

1036. c. **17.** Part of the right foot, partially dissected. The tarsus is much broken by a bullet and roughened by subsequent suppuration. Pus has escaped through the integument at several points.

Private J. A. M., "D," 4th Alabama Cavalry (Rebel): Fort Donelson, Tenn, 3d February; admitted hospital, Paducah, Ky., 7th February; amputated in the middle of the leg, 13th March; died, 31st March, 1863.

Contributed by Surgeon H. P. Stearns, U. S. Vols.

See class **XVI.** A. B. f.

1731. The calcaneum and adjoining tissues of the left foot, fractured by shell. The new bone forms nodules over the
c. 18. surface of the calcis, but the anterior portion has lost much substance by suppuration.

Sergeant J. McD., "K," 111th New York, 39: Gettysburg, 3d July; admitted hospital, Baltimore, 15th July, 1863; amputated by Acting Assistant Surgeon B. B. Miles; discharged the service, 16th April, 1864.

Contributed by the operator.

See class **X.** A. B. f.

3407. A wet preparation of a longitudinal section of the outer third of the left foot, with a spherical ball embedded near
c. 19. the tarso-metatarsal articulation of the great toe.

The history is obscure.

Contributed by Surgeon E. Bentley, U. S. Vols.

See classes **XVI.** A. B. b.; **XXVII.** B. B. d.

B. Not caused by Gunshot.

A. Primary Conditions. { a. Integument. b. Nerve. c. Other tissues.

c. Other Tissues.

301. A portion of the sterno-cleido-mastoideus muscle, transversely ruptured in its belly in execution by hanging. The
c. 1. divided portions retracted a distance of two inches.

Captain H. W. (Rebel): hanged, Washington, 10th November, 1865.

Contributed by Assistant Surgeons Thomson and Allen, U. S. Army.

See 300, **III.** B. A. a. 1; 298, **VIII.** A. B. a. 1; 299, **XIX.** B. A. a. 1; 302, **XXII.** B. A. c. 3.

4204. The left foot and lowest third of the leg, amputated by antero-posterior skin flaps and circular section of muscles.
c. 2. The internal malleolus and lowest third of the fibula were fractured, and the whole surface of the tarsal extremities of the leg bones protruded.

Private J. B. L., "L," 4th New York Heavy Artillery, 18: fractured by an army wagon, Washington, 3d June; amputated three hours afterward by Acting Assistant Surgeon Merrill. Recovered.

Contributed by the operator.

See class **XVI.** B. A. f.

302. Six inches of the rope used in the execution of Captain H .W., (Rebel,) Washington, 10th November, 1865. It is
c. 3. composed of three strands and is about five-eighths of an inch in diameter. The vertebræ were not dislocated, but the sterno-cleido-mastoideus muscle was transversely ruptured.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

See 300, **III.** B. A. a. 1; 298, **VIII.** A. B. a. 1; 299, **XIX.** B. A. a. 1; 301, **XXII.** B. A. c. 1.

See class **XXIX.**

B. Secondary Conditions. { a. Integument. b. Nerve. c. Other Tissues.

. Integument.

3247. A wet preparation of the left leg, showing the cicatrices of old ulcers, as if of scrofulous origin. The specimen
a. 1. has been cut open and reveals the bones in a healthy condition. There is a cicatrix, six inches in length by one and a half in width, extending obliquely through the middle third on the inner side and marking the site of an old ulcer. There are four ulcers near it measuring from a half to one inch in diameter. There are also cicatrices in the lowest third on the outer side.

Contributor and history unknown.

654. A portion of integument, from the forearm, exhibiting the figure of a Zouave, three and a half inches in length,
a. 2. tattooed in red and blue, beneath which is the inscription "J. McG. 9. REG N Y Z."

The specimen also presents bullet wounds of entrance and exit, the former passing through the head of the figure.

Contributed by Hospital Steward A. J. Schafhirt, U. S. Army.

See class **XXII.** A. B. a.

XXIII. RESULTS OF ERYSIPELAS, GANGRENE AND ALLIED DISEASES.

- **A.** Following Gunshot
  - **A.** Erysipelas.
  - **B.** Hospital Gangrene.
  - **C.** Gangrene.
- **B.** Not following Gunshot.
  - **A.** Erysipelas.
  - **B.** Hospital Gangrene.
  - **C.** Gangrene.
  - **D.** Frost-bite.
  - **E.** Reptiles and Insects.
  - **F.** Others.

XXIII. RESULTS OF ERYSIPELAS, GANGRENE AND ALLIED DISEASES.

A. Following Gunshot. { A. Erysipelas. B. Hospital Gangrene. C. Gangrene.

A. ERYSIPELAS.

1771. A wet preparation of the right hand, enormously swollen from erysipelas following fracture of the carpus and
A. 1. laceration of the soft parts by a musket ball. There are several fistulous openings through which pus has made its way. The case is remarkable for the slight constitutional disturbance following a local injury of such severity.

Private D. G., "E," 25th Kentucky: Shiloh, Ky., 6th April; admitted hospital, Paducah, Ky., 11th; furloughed, 13th April; returned to hospital, erysipelatous, July; amputated in the lowest third of the forearm by Surgeon E. Franklin, October, 1862. Recovered speedily.

Contributed by the operator.

2741. A wet preparation of the left hand, from which the second, third and little fingers have been removed. The soft
A. 2. parts are swollen, and on both surfaces numerous openings for the escape of pus are to be observed.

Private D. B., "I," 78th New York, 35: middle finger wounded, Chancellorsville, 3d May; admitted hospital, Philadelphia, 9th; finger amputated at second joint, 11th May; erysipelas increased the hand to double its usual size, and the parts became greatly disorganized; amputated above the elbow by Acting Assistant Surgeon R. A. Cleeman, 23d September, 1863. Healed by the first intention.

Contributed by the operator.

2988. A wet preparation of the lower portion of the right forearm and hand, amputated in the lowest third. The tissues
A. 3. became erysipelatous and sloughed, and sinuses formed around the wrist.

Private G. E., "D," 1st Vermont Heavy Artillery: Petersburg, 1st July; admitted hospital, Washington, 12th July; amputated by Acting Assistant Surgeon Herman Craft, 10th August, 1864. "Stump perfectly healed."

Contributed by the operator.

See **XXII.** A. B. a.

2743. A wet specimen of the right forearm and hand, showing phlegmonous erysipelas after gunshot of the wrist.
A. 4. Numerous abscesses appear throughout the limb where the tissue has been destroyed, as if by gangrene.

Sergeant T. R., "D," 119th New York, 28: Gettysburg, 3d July; admitted hospital, Philadelphia, 10th July; died, 19th August, 1863.

Contributed by Acting Assistant Surgeon Ed. A. Smith.

For other illustrations, see 3452, **I.** A. A. d. 6; 161, **I.** A. B. d. 5; 2541, **V.** A. B. b. 26; 8, **VI.** A. B. b. 15; 18, **VI.** A. B. e. 6; 780, **VII.** A. B. f. 9; 864, **VII.** A. B. f. 36; 2873, **VII.** A. B. f. 43; 350, **VII.** A. B. f. 66; 2076, **VII.** A. B. f. 109; 969, **VII.** A. B. f. 110; 773, **VII.** A. B. f. 111; 4, **VIII.** A. B. b. 15; 1868, **VIII.** A. B. c. 25; 2503, **IX.** A. B. f. 23; 3695, **IX.** A. B. f. 53; 2755, **IX.** A. B. f. 88; 3629, **IX.** A. B. f. 89; 1708, **X.** A. B. e. 6; 2178, **XII.** A. B. a. 15; 1248, **XII.** A. B. b. 43; 3849, **XII.** A. B. c. 1; 3738, **XII.** A. B. e. 4; 134, **XIII.** A. B. a. 19; 3163, **XIII.** A. B. b. 41; 3892, **XIII.** A. B. b. 74; 3872, **XIII.** A. B. b. 83; 3877, **XIII.** A. B. b. 84; 3874, **XIII.** A. B. b. 86; 3855, **XIII.** A. B. d. 44; 3573, **XIII.** A. B. f. 26; 3599, **XIII.** A. B. g. 64; 3659, **XIV.** A. B. b. 26; 2800, **XIV.** A. B. b. 53; 1399, **XIV.** A. B. b. 59; 2801, **XIV.** A. B. e. 1; 1732, **XIV.** A. B. f. 100; 3596, **XIV.** A. B. f. 137; 3393, **XV.** A. B. b. 48; 117, **XV.** A. B. d. 24; 7, **XV.** A. B. d. 28; 3883, **XV.** A. B. f. 37; 21, **XV.** B. B. d. 4; 470, **XVI.** A. A. e. 12; 3740, **XVI.** A. B. f. 165; 2281, **XVI.** A. B. h. 2; 214, **XVI.** A. B. h. 3; 2607, **XVIII. II.** A. B. b. 1; 1714, **XIX.** A. B. a. 17; 3962, **XXI.** A. B. b. 7; 3965, **XXII.** A. B. b. 5.

B. Hospital Gangrene.

3763. A wet preparation of a portion of the left hand, showing the ravages of hospital gangrene. The last three fingers
B. 1. and corresponding metacarpals appear to have been amputated, as if for gunshot. Phagedenic ulceration has destroyed much of the remaining soft parts. Amputation appears to have been performed in the lowest third of the forearm.

Contributor and history unknown.

3073. A wet preparation of the right wrist and hand, amputated in the lowest third of the forearm for a lacerated gunshot
B. 2. fracture in the palmar aspect of the base of the thumb. On the dorsal surface, to which the bullet does not appear to have penetrated, is an ulcer of hospital gangrene of three inches superficial diameter, on account of which and the constitutional depression the operation was performed.

Private J. B., "G," 69th Pennsylvania: wounded, 22d June; amputated by Surgeon N. R. Mosely, U. S. Vols., 9th August; died of pneumonia, 22d September, 1864.

Contributed by the operator.

3279. A wet preparation of the left wrist and hand. The second metacarpal bone was fractured, with laceration of the
B. 3. soft parts, and its removal was followed by secondary hæmorrhage and hospital gangrene, necessitating amputation in the forearm. The extensor tendons are exposed on the dorsum of the hand. The metacarpal bone of the thumb is completely denuded and the adjacent soft tissues destroyed, and an extensive ulcer occupied the palmar surface of the last two metacarpals.

Private J. S., "A," 7th New York (Heavy Artillery?), 34: admitted hospital, Washington, 17th August; second metacarpal disarticulated by Surgeon N. R. Mosely, U. S. Vols., 19th August; forearm amputated by Acting Assistant Surgeon W. H. Ensign, 15th September, 1864. Transferred North.

Contributed by Acting Assistant Surgeon W. Guthrie Winder.

551. A wet preparation of the right hand, showing hospital gangrene after amputation of the second finger at the
B. 4. second joint. Very extensive disorganization of the soft parts, including the tendons and the metacarpals, required amputation in the forearm.

Corporal I. M., "B," 184th Pennsylvania, 39: Cold Harbor, 3d June; admitted hospital with finger amputated, Chester, 12th; amputated in the lowest third of the forearm by Acting Assistant Surgeon J. G. F. Strawbridge, 30th June, 1864; amputated in the lowest third of the arm, for necrosis of the stump, by Acting Assistant Surgeon George S. Stein, 9th April, 1865. Recovered.

Contributed by Brevet Lieutenant Colonel T. H. Bache, Surgeon, U. S. Vols.

See 4170, **VIII.** A. B. f. 10; 2672, **XXI.** A. B. b. 13.

3384. A wet preparation of the left wrist and hand, exhibiting extensive destruction of the soft parts of the palm by
B. 5. hospital gangrene following a flesh wound. The metacarpo-phalangeal articulation was destroyed by ulceration.

Private E. F., "D," 9th New Hampshire, 32: Petersburg, 30th September; admitted hospital, Washington, 3d October; amputated by Acting Assistant Surgeon H. Craft, 3d November, 1864; discharged the service, 1st June, 1865.

Contributed by the operator.

2834. A wet preparation of the left hand, from which the metacarpal bone of the index finger has been removed, amputated
B. 6. in the lowest third of the forearm for sloughing by hospital gangrene of all the extensor tendons with slight injury to the skin.

Private E. E. G., "D," 2d Michigan, 31: admitted hospital, Washington, 13th June; gangrene appeared, 23d June; forearm amputated, 13th July; discharged the service, 24th September, 1864.

Contributed by Acting Assistant Surgeon John Morris.

2358. A wet preparation of the right forearm and hand. The first two fingers and their metacarpals have been removed,
B. 7. and the soft tissues adjacent to the incision are occupied by an ulcer, as if phagedenic. Gangrene has also invaded the ulnar side of the forearm exposing the bone, which is dislocated in the specimen. Amputation appears to have been performed in the middle third.

Contributed by Surgeon N. R. Mosely, U. S. Vols.

1990. A wet preparation of the right elbow, amputated in the lowest third of the humerus for gangrene following fracture
B 8. of both bones in the upper third. A line of demarcation encircles a space of four by six inches, in the centre of which the tissue is destroyed to the joint, which is disorganized.

Private O. C. C., "C," 65th New York: admitted hospital, Washington, 11th May; amputated by Acting Assistant Surgeon H. Craft, 16th September, 1864; discharged the service, 27th May, 1865.

Contributed by the operator.

945. A wet preparation of the left upper extremity, after amputation in the middle third of the humerus for gunshot
B. 9. fracture of the radius followed by hospital gangrene. The ulcer is about three inches in diameter.

Private H. L., "G," 8th Pennsylvania Reserves: a returned prisoner from Richmond; amputated by Acting Assistant Surgeon Crane, Annapolis.

Contributed by the operator.

1001. A wet preparation of the left thigh, exhibiting the ravages of hospital gangrene following a flesh wound by shell.
B. 10. Private S. D. T., "A," 16th New Hampshire, 42: Fredericksburg, 13th December, 1862; abscess opened five inches above the wound, becoming the seat of gangrene, 12th February; died, 28th February, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

1000. A wet preparation of the stump of the right thigh, destroyed by hospital gangrene. Almost complete cicatrization
B. 11. had occurred when the disease appeared. The femur, whose extremity is wounded, is stripped for three inches, and great excavations extend halfway to the hip.

Private I. W., "D," 1st New York Artillery, 31: Fredericksburg, 13th December; admitted hospital with amputated thigh, Washington, 26th December, 1862; gangrene attacked the wound, 15th February; died, 21st March, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

3459. A wet preparation of the left leg, exhibiting the posterior portion occupied by several immense and deep phagedenic
B. 12. ulcers.

Contributor and history unknown.

3456. A wet preparation of the left leg, exhibiting the ravages of hospital gangrene in the lowest third. An extensive
B. 13. ulcer six inches in length, which exposes the tibia, occupies nearly the entire circumference.

Contributor and history unknown.

1854. A wet preparation of the greater portion of the right leg, exhibiting a huge excavating ulcer of hospital gangrene,
B. 14. which has destroyed nearly all the soft tissues on the posterior portion of the upper third.

Contributed by Surgeon B. A. Vanderkieft, U. S. Vols.

3463. A wet preparation of the greater portion of the left leg, with the anterior half exhibiting extensive phagedenic
B. 15. ulceration.

Contributor and history unknown.

3455. A wet preparation of the right leg, with the bones exposed and the outer half destroyed by hospital gangrene.
B. 16. Contributor and history unknown.

3132. A wet preparation of the lower thirds of the left leg, amputated for hospital gangrene following a flesh wound.
B. 17. The ulceration occupies the outer and lower half of the limb, and has destroyed by necrosis a large superficial region of the fibula.

Private C. F. B., "E," 187th Pennsylvania, 30: admitted hospital, Washington, 30th June; amputated, 27th August; died, exhausted, 13th October, 1864.

Contributed by Acting Assistant Surgeon J. P. Arthur.

3665. A wet preparation of the greater portion of the left leg, amputated below the knee for hospital gangrene following
B. 18. a flesh wound by a conoidal ball. A very large amount of the soft tissue is destroyed, and the tibia is more or less denuded of periosteum for the length of five inches.

Private H. B., "E," 10th New Jersey, 21: Spottsylvania, 14th May; admitted hospital, Philadelphia, 27th May; sloughing commenced, 13th July; amputated by Acting Assistant Surgeon G. W. Webb, 12th August; died, 23d August, 1864.

Contributed by Acting Assistant Surgeon W. W. Shapley.

3133. A wet preparation of the left leg, showing contusion of the tibia in the middle third and destruction of tissue by
B. 19. hospital gangrene. The middle third of the tibia is necrosed, and the disease extends up the shaft of the bone on its posterior surface to near its head. At the time of death the gangrene had ceased and granulation commenced in the borders. Two openings by ulceration occurred in the lowest third shortly before death.

Private N. H., "F," 7th New York, 37: Cold Harbor, 3d June; admitted hospital, Baltimore, 11th; gangrene, 18th June—8th August; died, exhausted, 26th August, 1864.

Contributed by Acting Assistant Surgeon Andrew McLetchie.

3457. A wet preparation of the right lower extremity below the knee, showing upon the middle of the posterior surface
B. 20. a large phagedenic ulcer, the probable cause of death or amputation.

Contributor and history unknown.

3280. A wet preparation of the left foot and leg, exhibiting the loss of a very large portion of the soft tissues by hospital
B. 21. gangrene, probably following a flesh wound.

Private M. M., "D," 15th New York Heavy Artillery, 44: admitted hospital, Washington, 24th August; thigh amputated in the lowest third, 6th October; died, 7th October, 1864.

Contributed by Acting Assistant Surgeon H. M. Dean.

3637. A wet preparation of the lower portion of the right leg and tarsus, showing hospital gangrene following contusion
B. 22. of the bones involving the joint. The ulcer occupies a space of three by four inches, where it has destroyed the soft parts and where the bones are superficially diseased.

Private C. B., "D," 9th New Hampshire, 19: Spottsylvania, 19th May; admitted hospital, Philadelphia, 11th June; amputated in the middle third, 19th August; died of pyæmia, 28th August, 1864.

Contributed by Acting Assistant Surgeon Lampen.

3246. A wet preparation of the left foot, showing the soft tissues on the inner side greatly destroyed by hospital gangrene.
B. 23. Superficial ulcerations appear at various places over the dorsum of the foot. Amputation appears to have been performed just above the ankle.

Contributor and history unknown.

2635. A wet preparation of the left foot, showing the destruction of a metatarsal stump by hospital gangrene. The
B. 24. disorganization of the tissues is very complete.

Private J. C., "D," 88th Pennsylvania: toes amputated in the field, Cold Harbor, 3d June; admitted hospital, Washington, 11th; gangrene appeared, 20th; amputated in the middle third of the leg by Acting Assistant Surgeon H. M. Dean, 22d June; discharged, 3d August, 1864.

Contributed by Acting Assistant Surgeon E. L. Bliss.

3661. A wet preparation of the right foot, after amputation just above the malleoli. The tarso-metatarsal articulation of
B. 25. the great toe was fractured by shell. Phagedenic ulceration followed, involving the whole dorsum of the foot, from which, in the specimen, a huge slough is about separating. This may be regarded a fair type of hospital gangrene.

Private J. W., "E," 5th New Jersey, 27: Petersburg, 18th June; admitted hospital, Philadelphia, 30th June; amputated for gangrene and secondary hæmorrhage by Acting Assistant Surgeon F. H. Getchell, 26th July; died, exhausted, 19th August, 1864.

Contributed by the operator.

3127. A wet preparation of the left foot, exhibiting profound destruction of the anterior and inner portion by hospital
B. 26. gangrene following primary amputation through the metatarsal bone of the great toe. In the specimen the calcaneum is sawn through and the leg bones do not appear, as if Pirogoff's operation had been performed. The history, however, states that amputation was performed in the lowest third of the leg.

Private G. W. P., "C," 2d Pennsylvania Heavy Artillery: admitted hospital, Washington, 1st August; amputated by Surgeon N. R. Mosely, U. S. Vols., 14th; died, 25th August, 1864.

Contributed by Acting Assistant Surgeon W. Guthrie Winder.

See class **XVI.** D.

3664. A wet preparation of the greater portion of the left foot, showing the ravages of hospital gangrene following fracture
B. 27. of the second toe. All the toes, except the great one, are missing and the metatarsals protrude. The slough, with no line of demarcation, extends nearly to the ankle.

Private P. F., "B," 170th New York, 42: Petersburg, 17th June; admitted hospital, Philadelphia, 2d July; sloughing commenced, 4th July; amputated at the junction of the lower thirds by Acting Assistant Surgeon G. W. Miller, 10th August, 1864.

Contributed by Acting Assistant Surgeon W. W. Shapley.

2872. A wet preparation of the left hand, from which the last two fingers and the fifth metacarpal bone have been
B. 28. removed. Amputation was performed in the middle third for a gangrenous condition that followed the wound. Caries invaded the carpus and an opening for pus is seen in the integument near the joint. Extensive sinuses extended up the forearm.

Private J. W., "C," 2d Pennsylvania Heavy Artillery, 22: Petersburg, 17th June; fingers amputated in the field, 19th; admitted hospital, Washington, 30th June; amputated by Acting Assistant Surgeon H. Craft, 16th July; died of pyæmia, 10th August, 1864.

Contributed by the operator.

For other illustrations, see 1951, **I.** A. A. c. 9; 3631, **I.** A. B. b. 43; 3451, **I.** A. B. b. 57; 557, **II.** C. A. 2; 1806, **VI.** A. B. g. 2; 3918, **VII.** A. B. d. 20; 1750, **VII.** A. B. d. 77; 2129, **VII.** A. B. f. 34; 820, **VII.** A. B. f. 78; 3187, **VIII.** A. B. d. 29; 3625, **VIII.** A. B f. 9; 3621, **VIII.** A. B. g. 2; 3255, **IX.** A. B. f. 2; 1913, **IX.** A. B. f. 3; 2768, **IX.** A. B. f. 4; 1294, **IX.** A. B. f. 21; 2337, **IX.** A. B. f. 37; 2477, **IX.** A. B. f. 48; 3720, **IX.** A. B. f. 62; 3301, **IX.** A. B. f. 65; 2921, **IX.** A. B. f. 67; 3371, **IX.** A. B. f. 74; 1928, **IX.** A. B. f. 78; 752, **IX.** A. B. f. 86; 3005, **X.** A. B. e. 1; 3346, **XIII.** A. B. a. 1; 379, **XIII.** A. B. d. 56; 1665, **XIII.** A. B. g. 25; 2676, **XIII.** A. B. g. 67; 536, **XIII.** A. B. e. 29; 2656, **XIV.** A. A. e. 70; 1974, **XIV.** A. B. c. 6; 1940, **XIV.** A. B. c. 19; 2801, **XIV.** A. B. e. 1; 638, **XIV.** A. B. f. 43; 3809, **XIV.** A. B. f. 46; 2898, **XIV.** A. B. f. 97; 1732, **XIV.** A. B. f. 100; 3829, **XV.** A. A. d. 11; 3003, **XV.** A. B. a. 13; 3891, **XV.** A. B. b. 17; 1249, **XV.** A. B. b. 23; 3735, **XV.** A. B. b. 47; 2633, **XV.** A. B. b. 57; 3269, **XV.** A. B. c. 4; 3337, **XV.** A. B. c. 9; 2108,

XV. A. B. c. 18; 38, **XV.** A. B. d. 4; 3436, **XV.** A. B. d. 58; 3723, **XV.** A. B. d. 62; 3319, **XV.** A. B. d. 66; 3468, **XV.** A. B. d. 71; 1582, **XV.** A. B. d. 78; 858, **XV.** A. B. d. 104; 4329, **XV.** A. B. f. 4; 2923, **XV.** A. B. f. 11; 3320, **XV.** A. B. f. 23; 3773, **XV.** A. B. f. 25; 3125, **XV.** A. B. f. 26; 3883, **XV.** A. B. f. 37; 3129, **XV.** A. B. g. 9; 2620, **XV.** A. B. g. 28; 3601, **XV.** A. B. g. 36; 4242, **XV.** B. B. f. 1; 1915, **XV.** B. B. g. 1; 3338, **XVI.** A. B. b. 1; 3351, **XVI.** A. B. b. 5; 3007, **XVI.** A. B. e. 4; 4216, **XVI.** A. B. f. 85; 2205, **XVI.** A. B. f. 117; 2415, **XVI.** A. B. f. 134; 791, **XVI.** A. B. f. 136; 1702, **XVI.** A. B. f. 167; 1706, **XVI.** A. B. h. 1; 2660, **XVII.** A. B. a. 1; 888, **XVIII. II.** A. B. a. 23; 2568, **XVIII. II.** A. B. b. 6; 2616, **XVIII. II.** A. B. c. 3; 873, **XVIII. II.** A. B. c. 11; 2907, **XVIII. II.** A. B. c. 14; 4089, **XVIII. II.** C. A. a. 1; 3498, **XVIII. II.** C. B. b. 1; 4340, **XVIII. II.** C. B. b. 2; 1714, **XIX.** A. B. a. 17; 1066, **XXI.** A. B. a. 3; 3965, **XXII.** A. B. b. 5; 2218, **XXII.** A. B. c. 3; 937, **XXV.** A. B. b. 158; 2540, **XXV.** A. B. b. 173.

C. Dry Gangrene.

1760. A wet preparation of the lower half of the right femur with a portion of the soft tissues, after amputation for
C. 1. gangrene. A carbine ball passed through the internal lateral portion of the lowest third of the thigh and cut the popliteal artery, which was found, after amputation, filled, above and below the wound, with dark grumous blood.
Sergeant G. W. G., "H," 12th Illinois Cavalry, 29: Mitchell's Ford, Va., 11th October; admitted hospital, Washington, with diminished sensibility and heat and with discoloration, 13th; thigh amputated, 29th October; died, 5th December, 1863.
Contributed by Acting Assistant Surgeon J. Walsh.

For other illustrations, see 3050, **XIV.** A. B. f. 134; 2236, **XV.** A. A. d. 28; 2034, **XVI.** A. B. f. 115; 2114, **XVIII. II.** A. B. a. 10; 1491, **XVIII. II.** A. B. a. 26; 1698, **XVIII. II.** A. B. a. 27; 3971, **XVIII. II.** A. B. b. 41.

B. Not following Gunshot.

- **A.** Erysipelas.
- **B.** Hospital Gangrene.
- **C.** Gangrene.
- **D.** Frost-bite.
- **E.** Reptiles and Insects.
- **F.** Others.

A. Erysipelas.

2111. A wet preparation of the left foot, after amputation in the lowest third of the leg for erysipelas involving the
A. 1. ankle. The foot is immensely swollen, and the ankle joint, which has been laid open, exhibits erosion by suppuration.
Governor T. H. H.: amputated by Surgeon D. W. Bliss, U. S. Vols, Washington.
Contributed by the operator.

C. Gangrene.

1002. A wet preparation of the middle finger of the left hand, apparently disarticulated at the metacarpal joint for
C. 1. gangrene, as seen in the discolored soft tissues.
Contributed by Acting Assistant Surgeon George F. Shrady.

1763. A wet preparation of the right thumb, amputated in the metacarpal bone for gangrene following a bite by a comrade.
C. 2. Private J. McM., "D," 11th U. S. Infantry: bitten in a quarrel, 18th October; admitted hospital, Washington, 4th November; amputated, 6th November, 1863. Recovered.
Contributed by Acting Assistant Surgeon W. H. Combs.

1692. A wet preparation of the thumb of the right hand, amputated through the metacarpal bone for gangrene, probably
C. 3. due to the obliteration of the interosseous artery.

Private S. M., "A," 122d Ohio, 28: flesh wound of forearm and laceration of interosseous artery, Winchester, 15th June; admitted hospital, Baltimore, 23d; secondary hæmorrhage arrested by compression, 25th June; thumb removed for suddenly occurring gangrene, 7th July, 1863. Recovered.

Contributed by Surgeon C. W. Jones, U. S. Vols.

See 4506, **XXVII.** B. B. d. 87.

For other illustrations, see 1921, **XV.** C. 3; 2163, **XXIII.** B. D. 1.

D. Frost-Bite.

2163. A dry specimen of dry gangrene of all the
D. 1. toes of both feet following frost-bite. On the left foot the disease extended to the metatarsals.

See figure 148.

Hospital Steward R. S., 69th Pennsylvania, 49: Stevensburg, 1st January; admitted hospital, Washington, 1st February, 1864, disarticulated; discharged the service, 27th January, 1865.

Contributed by Surgeon R. B. Bontecou, U. S. Vols.

See class **XXIII.** B. C.

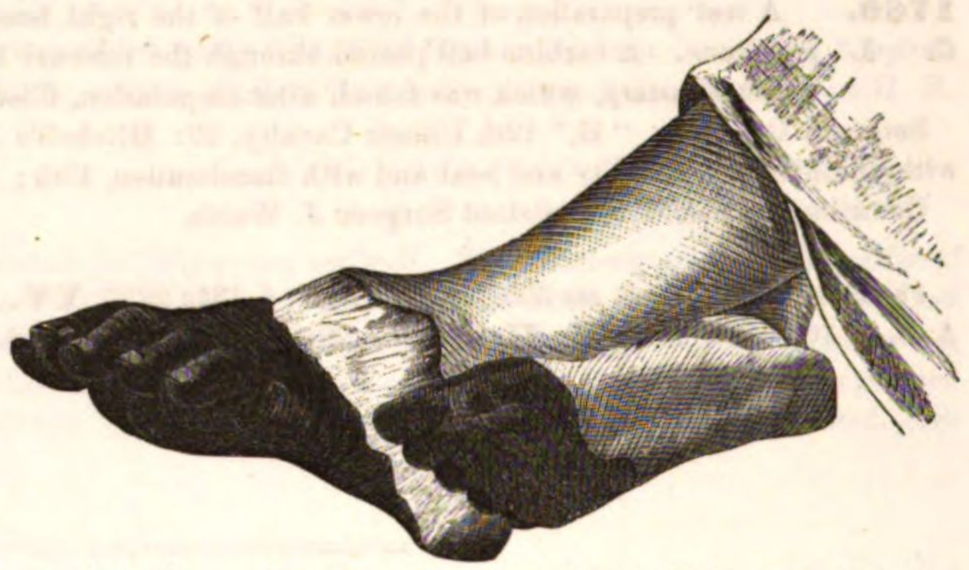

Fig. 148. Dry gangrene of both feet after frost-bite. *Spec.* 2153

1441. A wet preparation of the right foot, where
D. 2. the toes have sloughed after frost-bite and imperfect cicatrization has followed. The first and third metatarsals protrude. Amputation appears to have been performed just above the ankle.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See 1442, **XXI.** B. B. b. 2, *from the same case.*

939. A wet preparation of two feet, exhibiting the effects of frost-bite. All the toes of the right foot are wanting,
D. 3. leaving a well-rounded, completely healed stump, possibly the result of spontaneous amputation. Of the left foot, the second and third phalanges are wanting. The stumps, which are not those of an operation, show granulations not completely cicatrized.

G. A., (mulatto,) 38: admitted hospital, with pneumonia, Washington, 9th March; died, 14th March, 1866.

Contributed by Dr. S. S. Bond.

1955. A wet preparation of the greater portion of the left foot, with the toes lost and the metatarsals protruding, after
D. 4. extensive sloughing following frost-bite received in transportation while debilitated by chronic diarrhœa.

Private J. H., "D," 6th Maryland: admitted hospital, unable to endure amputation, Washington, 19th November; died, 7th December, 1863.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

3683. A wet preparation of both feet, illustrating sphacelus from frost-bite, followed by amputation above the malleoli.
D. 5. On the left foot the line of demarcation extends over the dorsum about one inch above the head of the first metatarsal to near the base of the fourth metatarsal and thence back nearly to the external malleolus, and on the plantar surface it nearly followed the tarso-metatarsal line. The first metatarsal is denuded and the tendons of the third and fourth exposed. On the right foot the line of demarcation crosses the dorsal surface one inch and the plantar one and a half inches above the metatarso-phalangeal articulation.

Private J. W., "E," 7th New York, 60: exposed about 20th—23d January; readmitted hospital, after desertion, Washington, 30th January; line of demarcation formed, 7th February; tissues appeared, 8th; amputated by Assistant Surgeon H. Allen, U. S. Army, 10th; died of tetanus, 11th February, 1865.

Contributed by the operator.

4711. Four small sequestra, after severe frost-bite followed by amputation of both forearms and both legs. (*a.*) Three-
D. 6. sixteenths by three-eighths of an inch is from the stump of the left ulna. (*b.*) Three-fourths by nearly one inch superficially and one-eighth of an inch thick, with its surface blackened, is from the right patella. (*c.*) Triangular, six by nine-sixteenths is from the left patella. (*d.*) Three-eighths of an inch in length, from the stump of the right tibia.

Private B. F., "H," 2d Minnesota Cavalry, 26: exposed, 11th—17th December, to a snow storm between Forts Wadsworth and Ridgely, in which both hands and forearms were frozen to the middle thirds, both feet and legs to the upper thirds, both knees over and around the patellæ and both alæ and the tip of the nose; admitted Post Hospital, Fort Ridgely, 24th December, 1865; gangrenous parts of the nose came away, 6th January; refused amputation until the line of demarcation reached the bones; both forearms amputated in the middle thirds, without cutting any blood vessels, by dissecting up the soft tissues and sawing through the bones, by Acting Assistant Surgeon Alfred Muller, 13th; leg amputated in the upper thirds in like manner, 16th January; this procedure was necessary from the extreme weakness of the patient; sequestrum *d* came away, 17th April; *a*, 22d April; sequestra *b* and *c* separated the middle of the same month. The knees healed rapidly, with anchylosis of the patellæ. The conical stumps of the four limbs were covered with solid cicatrices and the patient entirely recovered. Discharged by muster-out of his company, 28th April; relieved from treatment, 19th June, 1866.

Contributed by the operator.

See classes **VIII.** B. B. g.; **XIV.** B. B. k.; **XV.** B. B. g.

847. The second phalanx of the ring finger, disarticulated for frost-bite. The bone had been previously amputated
D. 7. through the shaft near its head.

P. S., (colored,) 20: amputated about six weeks after injury by Brevet Lieutenant Colonel Robert Reyburn, Surgeon, U. S. Vols., Washington, 9th January, 1867. Eloped one week afterward, doing well.

Contributed by the operator.

See class **X.** B. B. e.

869. Parts of the second phalanx of the second toe and of the metacarpal bone of the great toe, removed for frost bite.
D. 8. The extremities are carious after gangrene. The amputations were made through the continuity of the bones.

S. C., (colored,) 45: admitted hospital, Washington, 8th January; amputated by Brevet Lieutenant Colonel R Reyburn, Surgeon, U. S. Vols., 28th January, 1867.

Contributed by the operator.

See class **XVII.** B. B. e.

For other illustrations, see 2777, **XXI.** B. B. b. 3; 2417, **XXV.** B. B. b. 5.

E. Reptiles and Insects.

3743. A wet preparation of the great toe, disarticulated at the metatarsal articulation for ulceration of its extremity
E. 1. following the burrowing of the chigoe (jigger). From the case of a Negro at Freedman's Village, a returned colonist from the Island of Avache, West Indies.

Contributed by Acting Assistant Surgeon T. N. Calkins.

3742. The extremity of the right foot, amputated at the metatarso-phalangeal articulation for an extensive ulcer occupying
E. 2. the second toe, caused by the chigoe (jigger). The diseased surfaces represent a triangle, nearly three inches in length on each of its sides and half an inch in depth. The disease was in progress sixteen months before amputation. The case of a Negro girl at the Freedman's Village, near Washington, a returned colonist from the Island of Avache, West Indies.

Contributed by Acting Assistant Surgeon T. N. Calkins.

3699. A wet preparation of the left foot and the lowest third of the leg, after amputation for extensive chigoe ulcer on
E. 3. the outer malleolus. The lesion is about four inches in diameter and has existed sixteen months.

From a Negro, aged twenty years, a returned colonist from the Island of Avache, West Indies.

Contributed by Acting Assistant Surgeon T. N. Calkins.

3741. A wet preparation of the left foot and lowest third of the leg, after amputation for ulceration following the
E. 4. burrowing of chigoe. The ulcer is situated over the tendo-Achillis, is about three inches in diameter by three-fourths of an inch in depth, and is sixteen months old.

From a Negro, aged twenty-one, a returned colonist from the Island of Avache, West Indies.

Contributed by Acting Assistant Surgeon T. N. Calkins.

F. Others.

870. The lower half of the left leg, amputated for an extensive and long-existing indolent ulcer. The ulcer rests on the
F. 1. inner and lower portion of the leg, and embraces a surface of two inches in its smallest and ten inches in its greatest diameter and was the seat of vicarious menstruation. It was very painful, and contraction of the posterior muscles of the leg had induced a condition approximating talipes equinus.

A. N., (mulatto woman,) 25: cause unknown; existed four years; in hospital two years; at her earnest solicitation, amputated by Brevet Lieutenant Colonel R. Reyburn, Surgeon, U. S. Vols., Washington, 2d January, 1867. Recovered.

Contributed by the operator.

896. The left great toe, disarticulated at the metatarso-phalangeal articulation for ulceration following an ingrowing
F. 2. nail. The ulcer presents a surface one and a half inches in diameter and is excavated three-fourths of an inch. The nail is greatly distorted.

F. D., (colored,) 22: amputated by Brevet Lieutenant Colonel Robert Reyburn, Surgeon, U. S. Vols., Washington, 14th November, 1866.

Contributed by the operator.

1084. The left upper extremity, amputated in the highest third of the arm for disease following an old burn. An ulcer
F. 3. at the inner aspect of the bend of the elbow covers a length of six inches with an average width of five inches. The brachial artery is occluded, and the diseased surface steadily increased, possibly on account of deficient vascular supply. The ulcer, which had existed for four years resisting all treatment, was very painful, and had involved the olecranon in superficial necrosis. At the time of operation the constitutional condition was bad and abscesses existed in the axilla. A portion of the ulcerated tissue was included in the flap.

S. G., (colored woman,) 34: burned at the age of eight years; ulcer broke out at the age of thirty; admitted hospital, Washington, 27th January; amputated by Brevet Lieutenant Colonel R. Reyburn, Surgeon, U. S. Vols., 20th February, 1867.

Contributed by the operator.

XXIV. TUMORS NOT INVOLVING BONE.

- **A.** Malignant.
  - **A.** Operated Upon.
    - a. Scirrhous.
    - b. Encephaloid.
    - c. Epithelial.
    - d. Alveolar and compound.
  - **B.** Not Operated Upon.
    - a. Scirrhous.
    - b. Encephaloid.
    - c. Epithelial.
    - d. Alveolar and compound.
- **B.** Doubtful.
  - **A.** Operated Upon.
  - **B.** Not Operated Upon.
- **C.** Innocent.
  - **A.** Operated Upon.
    - a. Hypertrophies.
    - b. Cysts.
    - c. Lipomata.
    - d. Others.
  - **B.** Not Operated Upon.
    - a. Hypertrophies.
    - b. Cysts.
    - c. Lipomata.
    - d. Others.

XXIV. TUMORS.

A. Malignant.

A. Operated Upon.

a. Scirrhous.
b. Encephaloid.
c. Epithelial.
d. Alveolar and compound.

a. Scirrhous.

3689. Scirrhus of the mammary gland, removed by Dr. Alfred Ball from Miss A. B., in 1860. Had not returned three
a. 1. years after the operation. The specimen is flattened, with a superficial diameter of four inches and a thickness of nearly two.

Contributed by Surgeon H. Culbertson, U. S. Vols.

b. Encephaloid.

1572. The right thumb, disarticulated at the carpus for an apparently malignant disease of great volume.
b. 1. Case of Private H. H., "A," 108th U. S. Colored Troops: particulars unknown.

Contributed by Surgeon W. Watson, U. S. Vols.

See class **X.** C.

2257. The first finger of the left hand, exhibiting a fungus hæmatodes, for which amputation through the head of the
b. 2. metacarpal bone was performed.

The tumor is spherical, about an inch in diameter. The disease commenced as a spindle-shaped tumor, which, on incision, yielded only blood and increased rapidly, bleeding copiously on irritation.

Private A. A. L., "H," 1st Connecticut Cavalry, 21: tumor first appeared, December, 1863; admitted hospital, Baltimore, 7th March, 1864. Healed after amputation.

Contributed by Acting Assistant Surgeon J. J. Neff.

See class **X.** C.

c. Epithelial.

99. Epithelioma, one and a half by two inches, removed from the flexor surface of the right forearm directly over the
c. 1. median nerve. When recent, the tumor was quite vascular, of a bluish red color, nodulated, with several of the nodules ulcerated and loose. First noticed as a small wart eight years before removal. Grew slowly for seven years and then rapidly increased under the stimulus of caustic applications.

J. S., 52: removed, by an oval incision, by Dr. Charles M. Ford, 13th April, 1865.

Contributed by the operator.

B. Doubtful. { A. Operated Upon. / B. Not Operated Upon.

A. Operated Upon.

2003. A fibrous tumor, two inches in diameter, involving the right parotid gland, which is believed to have been removed
A. 1. entire in the extirpation of this body.

Private M. S., "D," 66th Ohio: admitted hospital, near Alexandria, 6th August; removed by Surgeon D. P. Smith, U. S. Vols., 22d October, 1863; transferred to Veteran Reserve Corps, 1st February, 1864.

Contributed by the operator.

1840. An oblate double-lobed tumor, two by three and a half inches after hardening in alcohol, which was removed from
A. 2. the breast of a substitute by an elliptical incision, including the nipple.

Received, without history, from Acting Assistant Surgeon Stillwell.

676. A fibro-cartilaginous tumor, two by three inches, removed from the right nipple by oval incisions.
A. 3. Private L. R., 3d New York Provisional Cavalry: tumor one inch in diameter, noticed November, 1863; excised by Surgeon J. M. Homiston, 3d New York Provisional Cavalry, 25th January, 1865; wound healed by the first intention; no return of the disease, 16th August, 1865.

Contributed by the operator.

2804. A flattened tumor, four and a half inches in its greatest diameter in its hardened condition in alcohol, removed
A. 4. from the anterior and right [left] side of the neck, where it lay upon the bodies of the cervical vertebræ. In its recent state the tumor was the size of a child's head a year old. "The trachea and œsophagus lay on the right side of the neck, embedded among the enlarged glands. The carotid artery on the left side was greatly dislocated, being pushed backwards and outwards so as to be seen and felt pulsating behind the line of the left ear."

Mr. S., (civilian,) 57: near Murfreesboro', Tenn.; tumor of thirty years' growth, increasing more rapidly the last fifteen years; "pale and feeble, had been unable to take nourishment and his breathing had become very much impeded for several days;" the large tumor and several smaller ones removed, at the patient's urgent request, by Surgeon I. Moses, U. S. Vols.; "lost very little blood, but did not seem to bear the chloroform well; in fact it was necessary to get up the influence several times; respiration actually ceased for some seconds during the operation. He seemed to rally well." * * * "He lost strength and died eight hours after the operation, 10th March, 1863."

Contributed by the operator.

3119. A somewhat flattened fibrous tumor, about three inches in diameter when recent, of twenty-five years' standing,
A. 5. removed from the inner aspect of the right thigh just above the knee. During the last three years only it occasioned some pain.

M. S., (colored woman,) 50: removed by Brevet Lieutenant Colonel R. Reyburn, Surgeon, U. S. Vols., Washington, 20th March, 1867.

Contributed by the operator.

B. Not Operated Upon.

3317. A wet preparation of integument, understood to be from the abdominal parietes, with an egg-shaped tumor nearly
B. 1. two inches in length attached.

Contributor and history unknown.

C. Innocent.

A. Operated upon.

- a. Hypertrophies.
- b. Cysts.
- c. Lipomata.
- d. Others.

a. Hypertrophies.

1823. An enlarged tonsil, excised by Assistant Surgeon T. C. Brainerd, U. S. Army.
a. 1. Contributed by the operator.

2608. An oblong flattened tumor, two and one-fourth inches in length by two in breadth and one in thickness, being an
a. 2. enlarged lymphatic gland removed from the outer margin of the sterno-cleido-mastoid muscle near its centre. The growth was of fourteen years. During the last two years it increased rapidly, as the patient thought, from the irritation of the knapsack straps which pressed just below the gland.

Private B. H., "D," 28th Massachusetts: removed, Philadelphia, 15th October, 1863.
Contributed by Acting Assistant Surgeon D. Kennedy.

4038. An oblong neuroma, one inch in length, dissected off the median nerve after a flesh wound.
a. 3. Private B. K., "A," 1st Delaware Cavalry: Edward's Ferry, Va., 15th February; extirpated, with temporary relief, by Acting Assistant Surgeon H. E. Woodbury, Washington, 3d April; ulnar nerve "separated," 7th; amputated in the arm by Surgeon D. W. Bliss, U. S. Vols., 10th; died from pyæmia, 28th April, 1865.

Contributed by Surgeon D. W. Bliss, U. S. Vols.
See 4095, **XXI.** A. B. b. 17; 4056, **XXIV.** C. A. a. 5.

2864. An ovid tumor, an inch and a quarter by an inch in size, connected with the external cutaneous nerve of the
a. 4. left thigh, which caused great inconvenience and suffering. A similar one was removed from the internal saphenous nerve.

Sergeant —— A., "I," 12th Veteran Reserve Corps: successfully removed by Assistant Surgeon Alex. Ingram, U. S. Army, Washington, 13th April, 1864.
Contributed by the operator.

4056. A wet preparation of portions of the median and ulnar nerves, with adjacent soft tissues, after amputation for
a. 5. neuralgia following a flesh wound of the right forearm. Upon each of the nerves a slight neuromatous enlargement is noticeable.

Private B. E. K., "A," 1st Delaware Cavalry: flesh wound near the elbow, Edward's Ferry, Va., 15th February; neuroma removed from the ulnar nerve, Washington, 3d April; ulnar cut through, 7th; amputated in the forearm by Surgeon D. W. Bliss, U. S. Vols., 10th; died of pyæmia, 28th April, 1865.
Contributed by the operator.
See 4095, **XXI.** A. B. b. 17; 4038, **XXIV.** C. A. a. 3.

For other illustrations, see 3654, **XX.** C. A. 3; 2157, **XXV.** C. B. 1.

b. Cysts.

3762. A wet preparation or polypus nasi, removed from the left nostril by twisting the pedicle which was attached to
b. 1. the vomer. "The size upon removal was two and a half inches in length and one and a half in breadth, much resembling a large oyster. Incapsulated, containing a glucose matter, having on the extreme surface three fibrous spots the size of a lint seed."

Private H. C. B., "H," 1st Rhode Island Light Artillery: removed in the field by Assistant Surgeon Fred. Wolf, U. S. Vols., February, 1865. Recovered.
Contributed by the operator.

c. Lipomata.

1194. A flattened fatty tumor, an inch and one-rourth in its superficial diameter.
c. 1. Contributor and history unknown.

3692. A flattened adipose tumor, three inches in length by one and a halt in width and half an inch in thickness,
c. 2. removed by enucleation after a simple incision from over the outer border of the trapezius opposite the fifth cervical vertebra.

Mrs. D——: cause unknown. Recovered.
Contributed by Surgeon H. Culbertson, U. S. Vols.

3688. An oblong, flattened, adipose tumor, somewhat lobulated, measuring three by three and a half inches, removed
c. 3. by enucleation from over the left scapula of J. P. in the fall of 1859.
Contributed by Surgeon H. Culbertson, U. S. Vols.

2603. A flattened fatty tumor, three inches in its greater diameter by an inch and one-fourth in thickness, which weighed
c. 4. eight ounces when recent. It was removed from between the inferior angles of the scapulæ by dissecting out the sac after a vertical incision of two inches through the skin.

Private J. C., "F," 148th Pennsylvania, 47: removed, Philadelphia, 18th November, 1863. Healed by the first intention.
Contributed by Acting Assistant Surgeon C. B. King.

3256. A flattened, ovid, adipose tumor of three by three and a half inches, removed from over the spine of the right
c. 5. scapula, where it followed a contusion.
Sergeant H. A. B., "H," 58th Massachusetts, 20: contused, Petersburg, 4th July; admitted hospital, Washington, 1st August; removed by Acting Assistant Surgeon A. Wansure, 22d September; returned to duty, 9th December, 1864.
Contributed by the operator.

4180. A lobulated fatty tumor, of four years' growth, three and a half inches in its greatest length and two and a half
c. 6. inches at its widest portion, removed from the acromial region. It lay beneath the skin in contact with but not attached to the deltoid muscle. Healed by the first intention.

Removed from a laundress employed at Stanton Hospital, Washington, by Surgeon B. B. Wilson, U. S. Vols., February, 1866.
Contributed by the operator.

d. Others.

For illustrations, see 91, **XX.** C. A. 5; 4210, **XXVI.** B. A. 19.

B. Not operated upon.
- a. Hypertrophies.
- b. Cysts.
- c. Lipomata.
- d. Others.

b. Cysts.

3124. A wet preparation of a multilocular cystic tumor of the right thyroid body, two by four inches in its greater
b. 1. diameters. The left side was normal.
Private A. F., "C," 2d Veteran Reserve Corps, 43: died from apoplexy, Washington, 25th August, 1864.
Contributed by Acting Assistant Surgeon H. M. Dean.

d. Others.

For illustrations, see 2632, **VII.** C. 2.

XXV. CASTS.

- **A.** After Gunshot.
  - **A.** Injuries.
    - a. Head and neck.
    - b. Upper extremities.
    - c. Trunk.
    - d. Lower extremities.
  - **B.** Operations.
    - a. Excisions.
    - b. Amputations.
    - c. Illustrating plastic operations.
    - d. Other operations.
- **B.** Not after Gunshot.
  - **A.** Injuries.
    - a. Head and neck.
    - b. Upper extremities.
    - c. Trunk.
    - d. Lower extremities.
  - **B.** Operations.
    - a. Excisions.
    - b. Amputations.
    - c. Illustrating plastic operations
    - d. Other operations.
- **C.** Of Disease and Malformation.
  - **A.** Operated Upon.
  - **B.** Without Operation.

XXV. CASTS.

A. After Gunshot.

A. Injuries. { a. Head and neck. b. Upper extremities. c. Trunk. d. Lower extremities.

a. Head and Neck.

1567. a. 1. A cast, designed to exhibit the effect of paralysis of the seventh pair of nerves on the left side from gunshot injury of the face. The lesion is so slight that it is not clearly shown.

Private J. C. D., "E," 71st Pennsylvania, 19: Gettysburg, 3d July, 1863; discharged the service, 2d July, 1864.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

1816. a. 2. A cast of the face, showing paralysis of the left side following a wound by a conoidal ball which entered beneath the left orbit near the infra-orbital foramen, fractured the lower portion of the malar bone and emerged below the left mastoid process. The cicatrix of the wound of entrance, slightly depressed, is very noticeable. The expression is characteristic. The wound remained painful and the saliva mingled with the discharge of the posterior wound.

Private W. S., "D," 7th Wisconsin: Gettysburg, 1st July, 1863; transferred West for muster-out, 30th September, 1864. Cast made in Philadelphia.

Received from Turner's Lane Hospital.

1401. a. 3. A cast of the face, with the left angle of the mouth extended by a wound from a fragment of shell. The wound curves outward and backward towards the ear, and the posterior portion has united as far forward as the last molar tooth. From this point to the angle of the mouth the edges have cicatrized separately, the inferior edge being thickened and rolled outward, while the upper edge is turned in and adherent to the superior maxilla.

Private J. C. J., "A," 61st Pennsylvania, 18: Spottsylvania, 11th May, 1864; cast made in Pittsburg; discharged the service, 20th April, 1865.

Contributed by Surgeon James Bryan, U. S. Vols.

1554. a. 4. A cast of the head, showing deformity resulting from gunshot wound of the face. A conoidal ball entered one inch below the internal angle of the left eye and passed across to the right side of the neck, fracturing the hard palate and inferior maxilla. The cicatrix of the wound of entrance is small and depressed. The right side of the face is much tumefied, the swelling occupying the malar region and angle of the lower jaw. The right corner of the mouth is depressed and slightly open.

Private J. A. S., "C," 98th Pennsylvania, 24: Second Fredericksburg, 3d May; transferred to Veteran Reserve Corps, 4th November, 1863. Cast made in Philadelphia.

Contributed by Acting Assistant Surgeons C. Carter and C. B. King.

See 4518, **XXVII.** B. B. d. 112.

b. Upper Extremities.

1817. b. 1. A cast of the left hand in a semi-flexed position. There is nothing noticeable in the specimen beyond a depression between the metacarpals of the thumb and index finger. The history describes a wound of the ulnar nerve above the elbow which resulted in atrophy and partial loss of use of the hypothenar interosseus, two ulnar lumbricales, adductor pollicis and the ulnar head of the flexor brevis pollicis.

Private S. D. B., "B," 144th Pennsylvania.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

4379. A cast of the left hand and forearm, apparently representing a dislocation of the ulna at the carpus. The history,
b. 2. however, describes an excision of the ulna, but at what point the specimen does not show.

Private J. R., "M," 10th New York Cavalry, 19: Gettysburg, 3d July, 1863; discharged from hospital, 15th March, 1864.

Contributed by Acting Assistant Surgeon G. F. Shrady.

See class **XXV.** A. B. a.

4357. A cast of the left hand and forearm, six months after fracture of the lowest third of the forearm. The hand is
b. 3. turned toward the radial side, as though anchylosed after dislocation.

Private G. W. Van V., "H," 128th New York: Cane River, La., 23d April; transferred to Veteran Reserve Corps, 20th October, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

1390. A cast of the left forearm and hand, eighteen months after gunshot fracture of the radius in the lowest third.
b. 4. There is a pitted cicatrix, as if of the wound of entrance, but none for the escape of the missile. The dorsal surface is swollen and the wrist appears anchylosed.

Sergeant P. B. D., "L," 6th Pennsylvania Cavalry, 25: Brandy Station, 9th June, 1863; cast made in Philadelphia; transferred to Veteran Reserve Corps, 25th March, 1865.

Contributed by Acting Assistant Surgeon C. B. King.

175. A cast of the right elbow and forearm. The elbow is reported fractured by a conoidal ball. The joint is much
b. 5. swollen and on the outer surface presents four nipple-like prominences, evidently the mouths of sinuses leading to necrosed bone within. It seems impossible that recovery could occur without an operation, but the history ceases abruptly.

Private O. B., "F," 20th Maine, 26: Poplar Grove, Va., 30th September, 1864; discharged the service, Washington, 2d June, 1865.

Contributed by Surgeon J. C. McKee, U. S. Army.

1434. A cast of portions of the right arm and forearm, showing a wound and probable fracture of the humerus above the
b. 6. elbow. There is an oblique cicatrix on the anterior face and a slight prominence, as if from a consolidated fracture.

Private P. F., "G," 42d New York, 25: Chancellorsville, 2d May, 1863; discharged, 2d July, 1864.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

308. A cast of the right thorax, fifteen months after fracture of the clavicle in the middle third. There are two cicatrices,
b. 7. an inch and a half apart, in the long axis of the bone, between which the united bone is enlarged to the size of half a walnut.

Private J. Q., "E," 9th New York Cavalry: Winchester, 8th June, 1863; cast made in New York; discharged, 1st October, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

See 4332, **IV.** B. B. b. 1.

1654. A rude plaster cast of the right hand and lower half of the forearm, representing an anchylosed wrist nine months
b. 8. after injury. A conoidal ball struck the inner border of the right hand and the first, third and fourth metacarpal bones. The hand became much swollen and abscesses discharged through six openings in the hand, wrist and forearm, controlled by injections of permanganates and bandaging.

Private M. W., "K," 86th Indiana, 21: Mission Ridge, 25th November; admitted hospital, Nashville, 2d December, 1863; wrist firmly anchylosed with limited motion of fingers, March; cast taken, 5th August, 1864.

Contributed by Acting Assistant Surgeon H. C. May.

1774. An indifferent plaster cast of the left shoulder, which is depressed, after fracture by a bullet that entered over the
b. 9. superior border of the acromion, passed downward and inward, "fracturing the glenoid cavity and head of the humerus," and escaped two inches from the elbow.

Private P. D., "D," 8th New Jersey, 29: Petersburg, 9th December; admitted hospital, Baltimore, 26th December, 1864. Healed about six weeks after admission.

Contributed by Acting Assistant Surgeon B. B. Miles.

c. Trunk.

3403. A cast of the anterior thorax, showing a granulating wound, as if by shell, three inches in diameter near the
c. 1. middle. The cast represents it very florid and vascular. The integument ceases with thickened edges at its border. The history is very imperfect.

Private M. T., "H," 10th U. S. Infantry: Gettysburg, 2d July; admitted hospital, New York, 26th September, 1863.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

2279. A cast of the abdomen, showing abdominal hernia after gunshot. The ball struck three inches to the left of the
c. 2. umbilicus. The wound healed rapidly leaving no cicatrix, but was followed by a tumor, three inches in its transverse diameter and half an inch in prominence, in consequence of the weakening of the abdominal walls.

Private W. W. W., "D," 7th New York Artillery, 38: Wilderness, 5th May, 1864; cast made in Albany; discharged, 31st March, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

d. Lower Extremities.

4051. A cast of the outer portion of the left hip, after a gunshot fracture below the trochanter major. There is a nipple-
d. 1. shaped prominence in the superior portion. A broad cicatrix, resembling the scar of a burn, is crossed at right angles by a narrower similar one. The history is exceedingly imperfect.

Private P. R., "A," 10th New York, 22: Cold Harbor, 3d June, 1864. Cast made in Washington.

Contributed by Assistant Surgeon J. C. McKee, U. S. Army.

1418. A cast of the left thigh, two and a half years after gunshot fracture of the femur. There are several cicatrices,
d. 2. two on the posterior and anterior faces appearing to be of the wounds of entrance and exit, and the others of subsequent abscesses. The ultimate result was union with three inches shortening, without ability to support much weight.

Private G. B., company and regiment unknown, 21: Second Bull Run, 28th August; treated by Buck's apparatus; discharged, 1st December, 1862; wound healed, July, 1863; enlisted, 132d Company Veteran Reserve Corps, 11th March, 1864; abscesses and sloughing occurred during 1864; healed, 20th January; discharged, 15th February, 1865. Cast made at Frederick.

Contributed by Acting Assistant Surgeon T. O. Cornish.

36. A cast of the right leg, made four and a half years after the injury and showing the result of a shell bruise on the
d. 3. anterior surface of the middle third. A prominence extends over the tibia, as though caused by the effusion of callus, and the summit is crowned by an indolent ulcer. The wound never received nor required active treatment, has caused no pain for a long time, and does not interfere with the daily outdoor occupation of the subject. The man is somewhat lame from a loss of a portion of the heel in the same battle.

Private J. H. L., 1st Virginia Battalion (Rebel): First Bull Run, 21st July, 1861. Cast made in Washington, winter of 1865–6.

Contributed by Hospital Steward E. F. Schafhirt, U. S. Army.

3111. A cast of the left foot, showing the healed wounds of entrance and exit of a bullet that passed transversely through
d. 4. the metatarsals causing slight lameness.

Private P. H., "I," 26th Pennsylvania: Second Bull Run, 29th August, 1862. Cast made in Philadelphia.

Contributed by Assistant Surgeon C. H. Alden, U. S. Army.

933. A cast of the right foot, showing the great toe strongly flexed, the result of a bullet entering below and anteriorly
d. 5. to the outer malleolus and escaping in the sole near the base of the great toe. The other toes are also flexed, but not to the same degree nor in the same manner.

Private J. H. M., "B," 52d New York: Spottsylvania, 12th May, 1864.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

561. A cast of the left foot and ankle. The ankle is immensely swollen as the result of gunshot directly through the
d. 6. malleoli.

Contributor and history unknown.

1356. A cast of the left thigh, fifteen months after fracture in the middle third, showing union with shortening and
d. 7. distortion. The history affords no particulars of treatment.

Private J. H. G., "E," 14th New York Heavy Artillery, 46: Walnut Grove, Va., 1st June, 1864; discharged the service, Albany, 2d October, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

B. Operations. { a. Excisions. b. Amputations. c. Illustrating plastic operations. d. Other operations.

a. EXCISIONS.

4378. A cast of the right hand and forearm, showing the result of primary excision of two and three-fourths inches of
a. 1. the shaft of the radius for gunshot fracture. There is a depressed cicatrix about two inches above the carpal articulation. The hand is inclined to the radial side and the forearm is somewhat atrophied.

Corporal P. W., "C," 6th New Hampshire, 21: Wilderness, 12th May, 1864; excision apparatus furnished, 10th July, 1865.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

4365. A cast of the right forearm, three months after primary excision of three inches from the middle third of the ulna.
a. 2. There is some depression near the middle of the wound, but little deformity.

Private C. O'N., "F," 10th New York, 35: Wilderness, 10th May; cast made in New York; discharged the service, 11th August, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

2761. A cast of the left forearm, six months after an excision of a portion of the radius in the lowest third. A broad
a. 3. oblique cicatrix extends over the dorsal surface, the line at the point of injury is depressed and union has probably not occurred.

Private W. H. G., "C," 91st New York, 18: South Side R. R., 31st March; cast made in Albany; discharged the service, 3d October, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

2386. A cast of the left forearm, ten months after fracture of the ulna at the lowest third. A cicatrix, nearly two inches
a. 4. long by one-fourth of an inch deep, marks where fragments have been removed and where it is probable union has not occurred. The muscular portion of the lower half of the forearm atrophied.

Private T. C., "A," 131st New York, 45: Port Hudson, La., 27th May, 1863; admitted hospital, New York, 4th January; discharged the service, 9th April 1864.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

4360. A cast of the left forearm, one year after excision of four inches from the upper third of the ulna. The cicatrix
a. 5. is not depressed. The wound of entrance is observable on the radial side. There is some atrophy, and the history reports the arm shortened three and a half inches. The elbow is intact.

Sergeant A. R., "B," 6th New York Cavalry, 16: Smithfield, Va., 29th August, 1864; transferred to the Veteran Reserve Corps, 21st August, 1865.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

3238. A cast of a very successful primary excision of the elbow. The olecranon was shattered and the heads of the
a. 6. ulna and radius were removed with the condyles of the humerus. Recovery occurred with only the impairment of extreme flexion. The specimen represents the arm nearly flexed without deformity.

Private W. S. D., "G," 60th Georgia, (Rebel,) 18: Monocacy, 9th July; excised by Surgeon Graves, Rebel Army; admitted hospital, Frederick, 10th July; transferred to Baltimore, 7th November, 1864.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

See 3949, **VII.** A. B. d. 8.

2630. A cast of the right elbow partially flexed, after primary excision of two and a half inches of the shaft of the
a. 7. humerus from the lowest third, involving the joint. The cicatrix is six inches in length. There is shortening and probably anchylosis as represented.

Captain J. C., "F," 91st New York, 62: Port Hudson, La., 27th May; excised, New Orleans, 31st May; granted leave of absence, 1st July, 1863. Cast probably made in Albany.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

2570. A cast of the left elbow, after removal of the bony articulation following the passage of a bullet through the joint.
a. 8. The arm is semi-flexed in the specimen, and that amount of motion is attainable in it.

Private J. H., 2d North Carolina, (Rebel,) 40: Gettysburg, 2d July, 1863; transferred to Baltimore, 5th May, 1864.

Contributed by Acting Assistant Surgeon J. C. Shimer.

See 3912, **VII.** A. B. d. 59.

4026. A cast of the right elbow, nearly three years after the excision of a number of fragments. An irregular transverse
a. 9. cicatrix extends across the dorsal surface just below the articulation. The joint is anchylosed and in a semi-flexed position, but is perfectly strong and otherwise useful.

Private E. T. P., "E," 2d New Hampshire: Gettysburg, 2d July; excised, Baltimore, October, 1863; transferred to Veteran Reserve Corps, 8th March, 1864; cast made at Army Medical Museum, where subject was on duty, July, 1866.

Contributed by Hospital Steward E. F. Schafhirt, U. S. Army.

2431. A plaster cast, showing the result of the primary removal of a portion of the left humerus six months after fracture.
a. 10. Upon the outer surface of the arm, near the junction of the upper and middle thirds, is a small nipple-like protuberance, as if of granulations enclosing a sinus. No cicatrix of incision is apparent, and the operation probably consisted in the removal of fragments. The arm is nearly normal in appearance, but slightly atrophied.

Corporal E. M. B., "H," 8th New York Cavalry, 19: Five Forks, Va., 1st April; admitted hospital, Albany, 11th July; transferred, 28th October, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

289. A cast of the right thorax and arm, showing the result sixteen months after primary excision of three inches of
a. 11. the shaft of the humerus at the junction of the upper thirds. The cicatrix, an inch and a half in length, is three-fourths of an inch deep. The arm is somewhat atrophied at that point and osseous union does not appear to have occurred.

Private A. J., "F," 112th New York, 24: Cold Harbor, 3d June, 1864; cast made in Albany; discharged, 21st October, 1864.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

2433. A cast of the left thorax and arm, ten months after a primary excision of three inches of the upper third of the
a. 12. shaft of the humerus. The bullet appears to have entered posteriorly two inches below the summit of the shoulder, and to have passed out anteriorly just above the outer fold of the axilla. The incision is six inches in length and the cicatrix broad and irregular. The arm is somewhat atrophied at the junction of the upper thirds. It is not known whether union occurred.

First Sergeant J. H. P., "F," 142d New York, 23: Darbytown Road, Va., 27th October, 1864; cast made in Albany; discharged the service, 22d September, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

1805. A cast showing the result of excision of three inches of the shaft of the right humerus fractured by gunshot.
a. 13. The cicatrix of the incision through the soft parts is on the middle of the posterior surface of the arm and is four inches in length. The arm is slightly curved, the concavity being in front and within, and is smaller in the centre, the muscles about the shoulder and elbow retaining their fulness, which give the limb a somewhat dumb-bell-shaped appearance. It is doubtful whether union has occurred.

Private C. A. F., "K," 60th New York, 21: wounded and excised, Atlanta, Ga., 25th July, 1864; cast made in Albany, July, 1865; mustered out of service, 31st August, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

4381. A cast showing the result of fracture of the left elbow and primary excision of three and a half inches of the
a. 14. humerus at the lowest third. There is a deep irregular cicatrix on the outer side of the elbow. The arm is shortened one and three-fourths inches. The functions of the hand and forearm are well performed.

Sergeant G. C. G., "F," 32d Massachusetts: Cold Harbor, 30th May, 1864; excision-apparatus applied, 11th August, 1865.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

2845. A cast of the right arm, showing the result of primary excision in the upper part of the humerus. The head and
a. 15. about four inches of the shaft appear to have been removed. A broad, nearly straight cicatrix on the posterior surface of the arm embraces the wound of exit. A small cicatrix on the anterior surface involves the wound of entrance. The comminuted bone has evidently been removed through enlargement of the wounds caused by the missiles. There appears to be no bony union at the seat of the operation. The shoulder is moderately full.

Private S. C. A., "B," 93d New York: Spottsylvania, 10th May; cast made in Albany; discharged the service, 30th May, 1864.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

1480. A cast of the left arm, four months after an excision of four inches of the shaft of the humerus, including fragments,
a. 16. for fracture by a conoidal ball. The incision was straight and five inches in length, commencing two inches below the acromion. The cast represents the cicatrix broad and somewhat irregular, with what appears a sinus at the lower extremity. The arm is shortened one inch.

Sergeant J. S. P., "G," 14th Virginia Cavalry, 25: Monocacy, 9th July; excised by Acting Assistant Surgeon J. Dunott, 12th July; transferred to Baltimore, 10th December, 1864.

Contributed by Acting Assistant Surgeon T. E. Mitchell.

See 3937, **VI.** A. A. c. 11.

2346. An indifferent plaster cast of the right arm, fifteen months after primary excision of five inches of the upper
a. 17. portion of the humerus. The arm is reported shortened only half an inch. It is much atrophied at the point of operation. The incision is a straight one down its anterior face. The use of the forearm remains.

Private E. H. C., "A," 75th New York: Port Hudson, La., 27th May, 1863; recovered and remained on duty as hospital attendant in the regiment; admitted hospital for slight bruise, Frederick, 29th August, 1864.

Contributed by Acting Assistant Surgeon E. R. Ould.

4363. A cast of the right thorax and arm, after excision of three inches from the upper shaft of the humerus by a **U**-shaped
a. 18. incision, base upward. The deltoid is destroyed and the parts are much atrophied. The functions of the forearm remain unimpaired.

Private E. C. M., "D," 13th New Hampshire, 43: Chapin's Farm, Va., 30th September, 1864; admitted hospital, New York, 20th April, 1865.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

384. A cast of the right thorax and arm, eleven months after the excision of four inches from the upper extremity of
a. 19. the humerus. The cicatrix is six inches in length, is parallel with the long axis of the arm, and has split the deltoid. The position whence the head of the humerus was removed is marked by a decided depression.

Corporal R. F., "C," 7th New York Heavy Artillery, 27: Cold Harbor, 8th June; excised, 18th June, 1864; cast taken in Albany; discharged, 16th May, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

3233. A cast of the right thorax and arm, showing the result of a primary excision of the head of the humerus nearly
a. 20. a year after the injury. The wound of incision was, for six inches, parallel to the biceps tendon, joined by a smaller one from the wound of injury, making the whole **Y**-shaped. The cicatrix is about three inches in length and quite deep. Necrosed fragments were removed from time to time. The upper extremity of the humerus is not drawn under the coracoid process and the arm is three-fourths of an inch shorter than its fellow.

Private D. N., Knapp's Pennsylvania Battery, 23: Wahatchie Valley, Tenn., 28th October; excised by Surgeon McMahon, 64th Ohio, Chattanooga, 30th October, 1863; cast made in New York; transferred to Veteran Reserve Corps, 20th October, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

4203. A cast of the left shoulder, about one year after a primary excision of the head of the humerus. There are two
a. 21. large circular cicatrices on the anterior face of the upper portion of the arm, which is somewhat flattened but not otherwise deformed.

Private T. D., "K," 123d New York, 20: Peach Tree Creek, Ga., 20th July, 1864; cast made in Albany; discharged the service, 29th July, 1865.

Contributed by Acting Assistant Surgeon J. H. Armsby, U. S. Vols.

1370. A cast of the right arm, five months after primary excision of the head and three inches of the shaft through a
a. 22. straight excision. There is a depression marked, as if with ulceration, just below the clavicle, and the shoulder is somewhat flattened. Ligamentous union exists between the extremity of the bone and the glenoid cavity. Free backward and forward motion but none laterally exists.

Private J. S. K., "H," 8th New York Cavalry, 19: Shepherdstown, Va., 25th August; admitted hospital, Frederick, 29th August, 1864; discharged, 3d February, 1865.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

See 674, **XXV.** A. B. a. 23.

674. A cast of the right arm, five months after primary excision of the head and three inches of the shaft of the humerus
a. 23. by a straight excision through the deltoid. The cicatrix is deeply depressed and no bony union has been made. The history represents ligamentous union to have occurred between the end of the bone and the glenoid cavity. The arm is shortened about an inch. There is a cicatrix, as if of a bullet wound, near the extremity of the clavicle. There is no lateral motion in the arm, but the forearm moves freely.

Private J. S. K., "H," 8th New York Cavalry, 19: Shepherdstown, 25th August, 1864; discharged the service, Frederick, 3d February, 1865.

Contributed by Acting Assistant Surgeon T. O. Cornish.

See 1370, **XXV.** A. B. a. 22.

4356. A cast of the right shoulder, one year after a primary excision of the head of the humerus through a longitudinal
a. 24. incision of four inches splitting the deltoid. The upper portion of the shaft was also removed. The arm is contracted and without control.

Private P. C., "H," 13th New Jersey, 43: Atlanta, 30th July, 1864; cast made in New York; discharged the service, 20th September, 1865.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

4326. A cast of the left thorax and arm, about ten months after a primary excision of the head and five inches of the
a. 25. shaft of the humerus. The incision is on the anterior face and is four inches in length. The shoulder has lost none of its prominence and, except in the line of the cicatrix, the wounded limb is well rounded.

Corporal J. H. J., "B," 143d New York, 31: Peach Tree Creek, Ga., 20th July, 1864; cast taken in New York; discharged the service, 18th June, 1865.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

1778. A cast of the left shoulder, after excision of the head and about two and a half inches of the shaft. Two
a. 26. cicatrices, one over the second rib and one on the posterior part of the arm, represent the wounds of entrance and exit. The cicatrix of the operation is straight, three and a half inches in length on the anterior face of the arm and parallel with it. The shoulder presents its usual prominence.

Private E. V., 120th New York: Chancellorsville, 3d May, 1863.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

2530. A cast of the right leg, fifteen months after primary resection of one and a half inches of the tibia in the upper
a. 27. third. The limb is much wasted, and ossific union does not appear to have occurred. The knee was anchylosed when discharged.

Private P. R., "K," 9th Connecticut: Madisonville, 5th January, 1864; excised by Surgeon Thompson, 12th Maine, the next day; discharged the service, 17th May, 1865; apparatus for resection furnished, 29th June, 1865.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

2552. A plaster cast of the left leg, fourteen months after removal from the upper third of four inches of the tibia.
a. 28. The cicatrix is well united and depressed from one-fourth to half an inch below the ordinary level. The limb is well rounded, but the bone does not appear to have been replaced. A cast of four inches of the tibia is attached, but, being apparently normal, cannot fairly represent the excised portion which was comminuted by a conoidal ball.

Private D. N. G., "D," 102d New York, 21: wounded and excised, Dallas, Ga., 27th May, 1864; cast made at Albany, summer of 1865; discharged the service, 18th August, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

2414. A cast of the left foot, three months after excision of the os calcis for fracture by a conoidal ball five months
a. 29. previously. There is little diminution of bulk, and, at the time represented, with a pad in the shoe the subject could walk without a cane.

Sergeant T. C. B., "C," 81st Pennsylvania, 16: Fredericksburg, 13th December, 1862; excised by Assistant Surgeon C. R. Greenleaf, U. S. Army, Philadelphia, 16th May; cast made, 16th August, 1862.

Contributed by the operator.

3139. A cast of the left foot much swollen, (and with apparent dislocation at the inner malleolus,) showing a cicatrix on
a. 30. the outer side of the calcaneum, where the foot was wounded and whence a portion of the bone was removed.

Private T. I., "H," 11th Pennsylvania Reserves: Antietam, 17th September, 1862; a lateral portion, embracing the diseased part, was removed by Assistant Surgeon C. H. Alden, U. S. Army, Philadelphia, 5th November, 1863.

Contributed by Acting Assistant Surgeon C. B. King.

4699. A plaster cast of the left arm, showing the cicatrix and general condition of the limb three years after a primary
a. 31. excision of the upper third of the humerus. There is shortening but no atrophy of the limb and the cicatrix is firm and sound. The limb is quite useful.

Private J. T. R., "C," 6th New York Cavalry, 22: Culpeper, Va., 11th October, 1863; primarily excised by Surgeon D. W. Bliss, U. S. Vols., Washington. When the cast was made, October, 1866, this man was an Orderly at the Museum.

Taken and contributed by Hospital Steward E. F. Schafhirt, U. S. Army.

See 1738, **V.** A. A. c. 43.

For other illustrations, see 4379, **XXV.** A. A. b. 2; 2786, **XXV.** A. B. b. 16.

b. AMPUTATIONS.

2524. A cast of the right hand, showing the middle finger amputated at the first phalangeal articulation. The stump
b. 1. is a little puffy.

Private W. A. B., "B," 2d New York Artillery, 42: Cold Harbor, 3d June; amputated, 4th June, 1864; cast made in Albany; discharged 26th May, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

1508. A cast of the left hand, from which the index finger has been primarily removed. The cicatrix is smooth and well
b. 2. healed.

Private A. A. R., "C," 140th Pennsylvania, 21: Spottsylvania, 12th May; transferred to Veteran Reserve Corps, 8th October, 1864. Cast made in Pittsburgh.

Contributed by Surgeon James Bryan, U. S. Vols.

1826. A cast in wax of the left hand, from which the second finger has been removed at the metacarpal articulation.
b. 3. The wound has healed very smoothly. Cast made at Pittsburgh.
Contributed by Surgeon James Bryan, U. S. Vols.

2436. A cast of the stump of the right hand, one year after amputation of the first and second fingers through the second
b. 4. phalanges. The stumps are well covered.
Private C. C., "F," 7th New York Heavy Artillery, 28: Spottsylvania, 19th May; amputated, 23d May, 1864; cast made in Albany; deserted from hospital, 31st August, 1865.
Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

307. A cast of the left hand, four months after amputation of the first two fingers through the first phalanges. The
b. 5. flaps, which were made from the palmar surfaces, are somewhat baggy.
Private B. B. C., "G," 2d New York Cavalry, 23: Fort Blakely, Ala., 31st March; amputated, 4th April; cast made in Albany; discharged, 17th August, 1865.
Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

3825. A cast of the left hand, from which the fourth finger has been amputated for gangrene after fracture. The cicatrix
b. 6. is very smooth, and the usefulness of the member seems little impaired.
Private A. La R., "H," 98th New York, 23: James River, 15th June; amputated, 8th July, 1864; on duty, 138th Company, 2d Battalion, Veteran Reserve Corps, 9th June, 1865.
Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

1566. A cast of the left hand, with the first three fingers primarily amputated through the first phalanges for fracture by
b. 7. a bullet. The cicatrices are well healed.
Private W. M. S., "K," 121st New York, 29: Spottsylvania, 10th May, 1864; cast made in Albany; discharged, 24th August, 1865.
Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

2955. A cast of the left hand, eleven months after primary amputation of the first three fingers at the metacarpal articulation.
b. 8. The cicatrix is transverse and the flap made from the palm is well coapted.
Private C. R., "B," 2d New York Artillery, 33: Petersburg, 30th June, 1864; cast made in Albany; discharged, 12th June, 1865.
Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

4027. A cast of the left hand, three months after reamputation through the first phalangeal joint of the index and the
b. 9. first phalanges of the middle and ring fingers for gangrene attacking primary amputation.
Private E. S., "H," 119th New York, 21: Lost Mountain, Ga., 16th June; primary amputation through second phalangeal articulations; cast made in New York; healed, 19th September, 1864.
Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

4380. A cast of the left hand, from which the first three fingers have been primarily amputated and in which the
b. 10. metacarpus was fractured. The stump after the amputation is well rounded. The cicatrix of the metacarpus, which is irregular, is depressed. The palm is somewhat puffy.
Private P. C., "D," 88th New York, 30: Wilderness, 12th May, 1864; cast made in New York; discharged, 5th June, 1865.
Contributed by Acting Assistant Surgeon Geo. F. Shrady.

2954. A cast of the left hand, eight months after primary amputation of the second finger through the head of the
b. 11. metacarpal bone for fracture by a bullet. The hand, as represented, appears very useful.
Private H. L., "I," 44th New York, 26: Wilderness, 5th May, 1864; cast made in Albany; transferred to Veteran Reserve Corps, 20th January, 1865.
Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

4177. A cast of the right hand, from which the thumb has been amputated through the metacarpal articulation and the
b. 12. third finger and part of the corresponding metacarpal bone removed.
Contributor and history unknown.

591. A cast of the right hand, ten months after primary amputation of the third finger through the middle of the
b. 13. metacarpal and of the fourth just above the carpo-metacarpal articulation. The cicatrix is somewhat irregular but firm.
Private W. R., "A," 115th New York, 24: Second Fair Oaks, 27th October, 1864; cast made in Albany; discharged, 7th August, 1865.
Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

2960. A cast of the left hand, with the little finger and the corresponding metacarpal bone amputated at the carpal
b. 14. articulation. The metacarpus is swollen to thrice its usual thickness.

Private P. H. S., "H," 43d New York, 21: Wilderness, 6th May; amputated, 22d September, 1864; cast made in Albany; transferred to Veteran Reserve Corps, 21st February, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

4362. A cast of the left hand, six months after removal of the fourth metacarpal bone and the corresponding finger for
b. 15. gunshot. The hand is swollen, especially in the palm, the fingers are puffy and partly flexed and the wrist anchylosed.

Corporal J. H. C., "F," 107th New York: Chancellorsville, 3d May; cast made in New York; discharged the service, 22d November, 1863.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

2786. A cast of the left forearm and thumb and forefinger, after primary removal of two inches of the distal extremity
b. 16. of the ulna with the fractured bones of the carpus and metacarpus and three outer fingers. Several of the inner carpal bones were those fractured. The remaining portions furnish a very useful member. The line of incision is on the inner and palmar surface.

Major C. W. H., 7th New York Artillery, 21: Cold Harbor, 3d June; operation by Surgeon J. E. Pomfret, 7th New York Artillery, 4th June, 1864. Cast made in Albany.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

See 1133, **XXV.** A. B. b. 17; 4628, **XXVI.** A. 2. 59.

See class **XXV.** A. B. a.

1133. A duplicate of specimen 2786, **XXV.** A. B. b. 16, taken at an earlier period.
b. 17. Contributed by Acting Assistant Surgeon Geo. K. Smith.

3112. A cast of the stump of the right forearm, nine months after primary amputation two inches above the carpus for
b. 18. fracture of the hand. The operation was circular or the flaps have sloughed. The cicatrix is wide and irregular and the integument scanty, presenting a broad granulating surface.

Private J. A., "H," 115th New York, 51: Chapin's Farm, 29th September, 1864; cast made in Albany; discharged the service, 29th April, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

686. A cast of the stump of the right forearm, after a circular amputation in the lowest third. The cicatrix is firm but
b. 19. tense over the extremity.

Private J. L. A., "H," 62d Pennsylvania, 29: Spottsylvania, 12th May, 1864. Artificial limb furnished.

Contributed by Surgeon James Bryan, U. S. Vols.

4013. A cast of the stump of the right forearm, four months after primary circular amputation in the lowest third. The
b. 20. posterior portion has retracted sufficiently to make the bones, though covered, quite prominent.

Private E. E., "I," 3d New York Light Artillery, 23: Newbern, N. C., 2d February; cast made in New York; discharged, 16th June, 1864. Artificial limb furnished.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

247. A cast of the stump of the left forearm, after a primary circular amputation in the lowest third. The extremity is
b. 21. very well formed and apparently firm.

Private M. T., "I," 198th Pennsylvania: South Side R. R., 1st October, 1864; amputated the same day; cast made in Washington.

Contributed by Acting Assistant Surgeon C. H. King.

2628. A cast of the stump of the left forearm, two months after a primary circular amputation in the middle third.
b. 22. Integumentary flaps were probably made.

Corporal J. W., "I," 34th Massachusetts, 23: wounded and amputated, Winchester, 19th September; admitted hospital, Frederick, 12th October; discharged the service, 30th November, 1864.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

4012. A cast of the stump of the left forearm, six months after primary circular amputation in the middle third. The
b. 23. stump is full and somewhat puffy.

Private S. E. C., "G," 6th New York Heavy Artillery, 21: Petersburg, 22d July, 1864; amputated by Surgeon Porter, 6th New York Heavy Artillery, the same day; cast made in New York; discharged, 23d February, 1865. Artificial limb furnished.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

4035. A cast of the stump of the right forearm, six months after primary circular amputation in the middle third. The
b. 24. cicatrix is nearly linear and transverse, and the bony extremities are sufficiently covered by the well-formed flaps.

Private J. D., "H," 83d New York, 22: Spottsylvania, 8th May; cast made in New York; artificial limb furnished, 30th September; discharged the service, 3d November, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

4181. A cast of the stump of the right forearm, eighteen months after primary amputation, by the circular method, in the
b. 25. middle third. The cicatrix, somewhat puckered, is firm. On the palmar surface are two cicatrices over the course of the radial and ulnar nerves, from which two inches of each were excised for pain in the stump, but without permanent relief.

Corporal R. J., "H," 13th Invalid Corps, 38: Antietam, 17th September, 1862; discharged, 15th March, 1864.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

1570. A cast of the stump of the left forearm, after a primary circular amputation in the upper third. The cicatrix is
b. 26. irregular and retracted in the centre, and the soft parts appear swollen.

First Sergeant J. W. W., "D," 34th Massachusetts, 26: Cedar Creek, 13th October, 1864; amputated by Surgeon R. R. Clark, 34th Massachusetts, the same day; discharged the service, 13th February, 1865.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

1802. A cast of the stump of the right forearm, after primary amputation in the middle third. The operation appears to
b. 27. have been by skin flaps and circular section of muscle. The cicatrix is singularly smooth and the stump is well formed.

Private J. K., 2d New Jersey: Fort Wool, Va., 21st August, 1861. Cast made in Albany.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

992. A cast of the stump of the left forearm, after amputation by skin flaps and circular section of the muscle. The
b. 28. stump is well formed, with the remains of a granulating surface at the inner angle of the cicatrix and the points, as if of old ulcers on the outer surface.

Private E. E. G., "D," 2d Michigan, 31: Petersburg, 17th June; amputated by Acting Assistant Surgeon John Morris, Washington, 13th July, 1864.

Contributed by Surgeon J. C. McKee, U. S. Army.

44. A cast of the left forearm, after a primary amputation, as if by flaps, in the lowest third. The cicatrix is transverse.
b. 29. The bones are quite prominent under the integument.

Private C. D., Macon Artillery (Rebel): captured, after amputation by a Rebel Surgeon for fracture of the metacarpus.

Contributed by Surgeon J. C. McKee, U. S. Army.

1447. A plaster cast of the stump of the right forearm, one year after primary amputation by antero-posterior flaps.
b. 30. The muscular covering is not large and the skin is tense. The limb is very small. The cast is mounted upside down.

Private S. C. J., "C," 12th Iowa, 32: wounded, 22d September, 1864; discharged, 25th September, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

3152. A cast of the left forearm, eight months after primary antero-posterior amputation in the upper third. The cicatrix
b. 31. is puckered and gathered in, as though the amputation was circular. The cast is mounted with the palmar surface up.

Private F. C., "H," 66th New York, 19: Gettysburg, 2d July, 1863; cast made in New York; discharged the service, 22d March, 1864.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

241. A cast of the stump of the right forearm, six months after primary amputation, as if by the flap method, in the
b. 32. upper third. The posterior portion of the stump is full and the cicatrix seems firm.

Sergeant J. W., 13th New York Battery, 34: Atlanta, 20th July, 1864; cast made in Albany; discharged the service, 14th February, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

4173. A cast of the stump of the left forearm, after amputation, by skin flap and circular section of the muscles, in the
b. 33. lowest third. The stump is a little baggy, and traces of an old ulcer show a few inches from the extremity.

Private A. M., "K," 6th New York Heavy Artillery, 23: Petersburg, 24th June; amputated by Acting Assistant Surgeon J. P. Arthur, Washington, 2d July, 1864.

Contributed by Surgeon J. C. McKee, U. S. Army.

3202. A cast of the stump of the left forearm, after amputation, by skin flaps and circular section of muscle, in the middle
b. 34. third. "Stump entirely healed fifteen days after the operation." The cast, which is not a good one, conveys the impression that the forearm is greatly swollen, as if by erysipelas, and presents two pouting ulcers, as though the mouths of sinuses leading to necrosed bone.

Private J. B., "C," 8th Ohio, 28: amputated in Washington by Acting Assistant Surgeon A. Ansell, 1st July, 1864.
Contributed by the operator.

4143. A cast of the stump of the left forearm, after gangrene following amputation in the upper third by antero-posterior
b. 35. flaps. The cicatrix is contracted to simulate a circular amputation. There is decided hyperostitis on the ulnar portion.

Private J. C., "I," 2d New York, 21: Spottsylvania, 19th May; discharged, 20th December, 1864. Artificial limb furnished.
Contributed by Acting Assistant Surgeon Geo. F. Shrady.

2959. A cast of the stump of the right forearm, five months after circular amputation in the lowest third. The skin
b. 36. was divided into flaps. The stump is firm and well united.

Private T. K., "H," 39th New York, 18: Spottsylvania, 10th May; cast made in New York; discharged the service, 3d November, 1864. Artificial limb furnished.
Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

1859. A cast of the stump of the right forearm, after amputation just above the wrist, as if by antero-posterior flaps. The
b. 37. stump is well formed and the cicatrix firm.

Contributor and history unknown.

935. A cast of a conical stump of the right forearm, as if after amputation in the lowest third. Both bones may be
b. 38. traced beneath the skin, which is tightly drawn over the extremity.

Captain W., 2d North Carolina (Rebel).
Contributor and history unknown.

1523. A cast of the left forearm, after an antero-posterior or flap amputation in the middle third. The stump is excellently
b. 39. rounded and the cicatrix is healed, excepting in small points of ulceration near the outer angle.

Contributor and history unknown.

4031. A cast of the stump of the left forearm, after amputation at the junction of the upper thirds. The operation
b. 40. appears to have been circular. The cicatrix is small and the soft tissues sufficient.

Private W. M., 5th Maine Battery: Chancellorsville, 3d May, 1863. Cast made in New York.
Contributed by Acting Assistant Surgeon Geo. F. Shrady.

1585. A cast of the stump of the left forearm, after a circular amputation in the upper third. The stump is too full and
b. 41. is baggy for several inches, as though softened by disease.

Private G. S., "I," 21st New York.
Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

1403. A cast of the stump of the left arm, after a circular amputation in the lowest third. The skin has been divided
b. 42. into bilateral flaps. The cicatrix is deeply depressed in the centre but appears firm.

Private E. McK., "D," 2d Massachusetts Cavalry, 30: Smithfield, Va., 13th September; amputated by Surgeon James Willard, 1st Potomac Home Brigade, Sandy Hook, Va., 14th September 1864. Cast made in New York. Furnished with an artificial limb.
Contributed by Acting Assistant Surgeon Geo. F. Shrady.

3479. A cast of the stump of the left arm, after primary amputation in the lowest third. The stump has the appearance
b. 43. of being well healed with slightly superfluous integument after circular amputation.

Private W. H. B., "H," 38th Wisconsin: wrist, Southside R. R., 30th October, 1864.
Contributed by Acting Assistant Surgeon A. M. Sherman.

568. A cast of the right arm, after primary circular amputation in the middle third. The stump is well rounded, but
b. 44. presents a large granular surface at the extremity, as though caused by the sloughing of the integument.

Corporal M. L., "A," 66th New York: Ream's Station, Va., 25th August; amputated by Surgeon J. W. Wishart, 140th Pennsylvania, 26th August, 1864.
Contributed by Surgeon J. C. McKee, U. S. Army.

362. A cast of the stump of the left arm, two months after a primary circular amputation in the middle third. The outer
b. 45. half of the stump appears to have united by the first intention.

Private O. J. E., "D," 114th New York, 18: Winchester, 19th September; amputated by Dr. Harman; discharged the service, Frederick, 27th November, 1864.
Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

593. A cast of the left thorax and stump of the arm, after a primary amputation in the middle third. A shell completely
b. 46. shattered the bone and cut off the soft tissue so smoothly that, it is reported, no further section of them was required. The flap is sufficient, the cicatrix being a little indrawn on the thoracic side.

Corporal W. D. J., "C," 3d New York Artillery, 23: Newbern, N. C., 9th January, 1866. Cast taken in Albany.
Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

215. A cast of the stump of the right arm, nine months after a primary circular amputation in the middle third. The
b. 47. stump is well formed with a small cicatrix.

Private T. H., "D," 14th New York State Militia, 22: Gettysburg, 3d July, 1863; cast made in New York; discharged the service, 9th April, 1864. Artificial limb furnished.
Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

1363. A cast of the right thorax and stump of the arm, eight months after primary amputation in the middle third.
b. 48. The operation was apparently circular and the flaps have retracted to a certain extent, leaving the extremity quite irregular but covered with integument.

Private S. W., "C," 9th New York Artillery, 20: Cedar Creek, 19th October, 1864: admitted hospital, Albany, 28th June; discharged the service, 19th August, 1865.
Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

2729. A cast of the stump of the right arm, two months after primary amputation, by the circular method, at the junction
b. 49. of the upper thirds. The cast is quite rough, but it exhibits extensive irregularities at the extremity, as though due to retraction of superfluous flaps.

Private M. P., "E," 153d New York: Cedar Creek, 19th September; admitted hospital, Frederick, 27th September; discharged the service, 28th November, 1864.
Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

3490. A cast of the right thorax and stump of the arm, after primary circular amputation at the junction of the upper
b. 50. thirds. The posterior and internal portion of the flap has retracted very much, leaving a deeply depressed cicatrix.

Private A. S., "H," 91st New York, 18: Petersburg, 31st March, 1865. Cast made in Albany.
Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

1657. A cast of the stump of the left arm, ten months after primary circular amputation in the upper third. The cicatrix
b. 51. is very smooth, with the integument fairly drawn over the extremity.

Sergeant H. M. P., "B," 10th Vermont, 22: Locust Grove, 27th November; amputated by Assistant Surgeon Fugner, 14th New Jersey, 29th November, 1863; cast made in New York; discharged the service, 23d September, 1864. Artificial limb furnished.
Contributed by Acting Assistant Surgeon Geo. F. Shrady.

3177. A cast of the stump of the left arm, four months after circular amputation in the upper third. The stump is well
b. 52. rounded and the cicatrix, which is small, is directly over the extremity.

Sergeant J. D., "E," 6th Pennsylvania Cavalry, 26: Smithfield, Va., 25th August; amputated, 29th August; admitted hospital, Frederick, 13th September; discharged, 16th December, 1864. Artificial limb furnished.
Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

1466. A cast of the stump of the right arm, after primary amputation, as if by the circular method, in the upper third.
b. 53. The cicatrix extends transversely and appears to embrace a part of the skin over the chest. The skin has puckered itself into several unsightly prominences.

Color Sergeant W. B., "I," 66th New York: Gettysburg, 3d July, 1863.
Contributed by Surgeon I. I. Hayes, U. S. Vols.

4322. A cast of the stump of the right arm, eleven months after primary amputation in the middle third by skin flaps and
b. 54. circular section of the muscles. The soft parts are beautifully coapted in a linear cicatrix transversely across the extremity, and the whole stump is well rounded.

Private H. B. T., "F," 137th New York, 18: Lost Mountain, Ga., 16th June; admitted hospital, New York, 12th October, 1864; discharged, 25th May, 1865.
Contributed by Acting Assistant Surgeon Geo. F. Shrady.

416. A cast of the left arm, after a primary amputation in the middle third. The operation appears to have been by
b. 55. skin flaps and circular section of the muscles. The inner half is somewhat retracted, and the centre of the cicatrix presents the appearance of continued ulceration, as though from necrosed bone.

Private L. C. E., "I," 2d U. S. Infantry: Weldon R. R., Va., 21st August; admitted hospital, Washington, 28th August, 1864.
Contributed by Acting Assistant Surgeon Noble.

2854. A cast of the right thorax and stump of the arm, ten months after primary amputation, as if by lateral flaps, in the
b. 56. lowest third. The cicatrix is deepest on the inner side, which is somewhat retracted.

Sergeant C. C. C., "G," 115th New York, 21: Chapin's Farm, Va., 29th September, 1864; cast made in Albany; discharged, 29th July, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

357. A cast of the stump of the left arm, after primary flap amputation in the lowest third. The stump is a little
b. 57. baggy, but the flaps are well coapted.

Private W. M., "K," 1st New York Engineers: Fort Wagner, S. C., 26th August, 1863. Cast made in New York. Artificial limb furnished.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

3783. A cast of the stump of the right arm, after a primary antero-posterior flap amputation in the lowest third. Much
b. 58. of the wound appears to have healed by the first intention. The inner angle of the cicatrix is irregular and retracted.

Private C. D. L., "I," 3d U. S. Colored Troops: Fort Wagner, S. C., 2d October, 1863. Cast made in New York. Artificial limb furnished.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

4321. A cast of the stump of the left arm, after primary amputation, by bilateral flaps, in the lowest third. On the
b. 59. anterior border, near its centre, the cicatrix appears to have delayed in its healing. Midway to the shoulder is the cicatrix of an abscess.

Private M. O'C., "H," 164th New York, 29: Salisbury, N. C., 25th November, 1864. Cast made in New York. Artificial limb furnished.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

525. A cast showing the result of primary amputation of the right arm four inches above the elbow six months after
b. 60. injury. The method of operation was by antero-posterior flaps. A linear depressed cicatrix traverses the face of the stump. Atrophy of the muscles of the arm has occurred, especially at the lower part.

Private E. T., "M," 24th New York Cavalry: Dinwiddie C. H., Va., 31st March; admitted hospital, Albany, 28th June; transferred, 28th October, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

1361. A cast of the stump of the right [left] arm, four months after a primary flap amputation in the middle third. From
b. 61. the cast the method appears to have been circular. The cicatrix is irregularly stellate and gathered in the centre.

Sergeant H. L. R., "F," 109th New York, 35: Petersburg, 30th July; discharged the service, 3d November, 1864. Artificial limb furnished.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

1485. A cast of the stump of the left arm, one year after a primary antero-posterior flap amputation at the junction of
b. 62. the upper thirds. The cicatrix is curved, and retraction of the anterior flap has left the central portion to heal by granulation.

Private J. T., "F," 2d New York Cavalry, 20: Cane River, La., 1st May; excised, New Orleans, 7th May, 1864; cast made in New York; discharged the service, 16th May, 1865. Artificial limb furnished.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

911. A cast of the stump of the right arm, after primary flap amputation at the junction of the upper thirds. The
b. 63. extremity is slightly irregular but appears well healed.

Private T. M., "E," 108th New York: Antietam, 17th September, 1862. Artificial limb furnished.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

2379. A cast of the stump of the left arm, four months after a primary flap amputation at the junction of the upper
b. 64. thirds. The extremity is a little irregular, as though due to the internal retraction of the soft tissues.

Corporal W. A. S., "B," 15th New York, 19: Winchester, 19th September; admitted hospital, Frederick, 21st December, 1864; discharged the service, 28th January, 1865. Artificial limb furnished.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

3014. A cast of the stump of the left arm, one year after primary antero-posterior flap amputation at the junction of the
b. 65. upper thirds. There has been some retraction of the inner portion of the flap, leaving the cicatrix stellate at the extremity of the stump.

Private W. G., "E," 169th New York, 22: Petersburg, 30th June; admitted hospital, Albany, 20th October, 1864; transferred, 28th August, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

1388. A cast of the stump of the left arm, after primary amputation at the junction of the upper and middle thirds by
b. 66. antero-posterior flaps. The stump is entirely cicatrized, the posterior part being full and slightly bagging while the anterior flap is lifted by the bone. The cicatrix is but slightly depressed and there is but little puckering.

Private H. G. G., "F," 7th Wisconsin, 16: Petersburg, 16th June; amputated in the field, 18th; admitted hospital, New York, 24th June; discharged the service, 6th December, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

96. . A cast of the stump of the left arm, twenty-two months after a primary flap amputation at the junction of the
b. 67. upper thirds. The stump is excellently well formed.

Corporal G. D., "K," 1st U. S. Colored Troops, 18: Petersburg, 15th June, 1864; amputated by Surgeon J. R. Weist, 1st U. S. Colored Troops.

Cast taken and contributed by Hospital Steward E. F. Schafhirt, U. S. Army.

2978. A cast of the stump of the left arm, ten months after primary amputation in the upper third. The cicatrix is
b. 68. nearly linear and curved slightly upward. The inner (lower) flap is the longer. The soft parts are full and plump with no puckering or tension at any point.

Private P. McC., "A," 43d New York, 18: wounded and amputated, Cold Harbor, Va., 3d June, 1864; cast made in Albany; transferred to Veteran Reserve Corps, 10th May, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

566. A cast of the right thorax and shoulder, fifteen months after a primary amputation in the upper third of the arm.
b. 69. The cicatrix, which is curved downward, passes transversely directly across the face of the stump and is broad and apparently tense. The extremity of the bone drawn upward is prominent under the integument.

Private E. O'B., "H," 96th New York, 22: Petersburg, 18th June, 1864; cast made in Albany; transferred to New York Harbor, 30th October, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

1541. A cast showing the result of primary amputation of the left arm near the shoulder joint by a modification of
b. 70. antero-posterior flaps, seven months after the operation. The posterior flap is long, loose and baggy. The cicatrix commences an inch below the acromion process and curves downward and forward to a point half an inch below the anterior border of the axilla. The head of the humerus is drawn forward by the pectoral muscle.

Private T. C., "C," 58th Massachusetts, 26: Spottsylvania, 12th May, 1864; amputated the same day; cast made in New York; discharged the service, 1st January, 1865. Artificial limb furnished.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

442. A cast of the left arm, after amputation in the lowest third. The operation appears to have been by the circular
b. 71. method. The skin has contracted from the extremity, leaving a granulating surface of several square inches.

Private J. V., "B," 4th Ohio, 44: Ream's Station, Va., 25th August; amputated by Acting Assistant Surgeon Belton, Washington, 12th October, 1864.

Contributed by Assistant Surgeon Sherman.

4251. A cast of the stump of the left arm, one year after circular amputation in the middle third for fracture of the
b. 72. elbow. Retraction of the inner flap has carried the cicatrix to the inside of the arm.

Private J. O'R., "H," 1st Vermont Cavalry, 41: Gettysburg, 3d July; amputated, 9th July, 1863; cast made in New York; discharged the service, 22d August, 1864. Artificial limb furnished.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

3090. A cast of the right thorax and stump of the arm, fourteen months after amputation in the lowest third. The
b. 73. operation has been circular and retraction has left a conical stump with integument covering the extremity. The arm is somewhat atrophied.

Private A. E., "G," 3d New York, 26: Drury's Bluff, 14th May; admitted hospital, Albany, 30th July, 1864; discharged, 29th July, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

4187. A cast of the stump of the right arm, after an antero-posterior flap amputation in the upper third. The stump is
b. 74. excellently full, but the cicatrix, which is linear and nearly transverse, is somewhat depressed.

Private T. J., "D," 48th New York: Fort Wagner, S. C., 18th July; amputated, 24th July, 1863; cast made in New York. Artificial limb furnished, May, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

4376. A cast of the stump of the right arm, nine months after amputation by antero-posterior flap amputation at the
b. 75. junction of the upper thirds. The stump is well formed.

Private J. G. C., "E," 51st New York, 20: Weldon R. R., 1st September; amputated by a Rebel Surgeon, 1st October, 1864; cast made in New York; discharged the service, 8th July, 1865. Artificial limb furnished.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

2850. A cast of the stump of the right arm, after amputation in the upper part of the middle third by antero-posterior
b. 76. skin flaps with circular sections of muscle. The stump is rounded and full with no apparent bony prominence.

Private F. J. S., "H," 74th Pennsylvania: cast made at Frederick.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

1958. A cast of the stump of the right arm, two months after amputation in the middle third, as if by flap of the skin
b. 77. and circular of the muscles. The stump is sufficient and well healed, excepting near the inner angle, where a point of ulceration appears to remain.

Private M. D., "E," 160th New York, 28: Winchester, 19th September; amputated by Acting Assistant Surgeon E. R. Ould, Frederick, 15th October; admitted hospital, New York, 21st December, 1864; discharged the service, 6th July, 1865. Artificial limb furnished.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

1575. A cast of the stump of the left arm, after amputation at the junction of the upper thirds by lateral flaps of the
b. 78. skin and circular section of the muscles.

Private W. H. H. T., "K," 128th New York, 24: Winchester, 19th September; admitted hospital, Frederick, 12th November; amputated by Acting Assistant Surgeon W. B. McCausland, 6th December; stump entirely healed, 30th December, 1864.

Contributed by the operator.

See 3913, **VI.** A. B. d. 31.

4705. A cast showing the result of a primary amputation at the shoulder joint, for laceration by a fragment of shell,
b. 79. three months after injury.

Sergeant W. G. S., "D," —— New York Vols.: Fort Steedman, Va, 22d March; admitted hospital, Washington, 28th March; discharged the service, 6th July, 1865.

Contributed by Acting Assistant Surgeon G. K. Smith.

383. A cast showing the result of a secondary amputation at the right shoulder joint, the patient having died of phthisis
b. 80. fifty-four days afterward. A part of the shaft of the humerus, fractured by gunshot, had been excised previously. There is great emaciation, causing remarkable prominence of the anterior border and head of the scapula. The cicatrix is nearly linear, extending downward from the acromion process into the deep hollow underneath.

Private C. G., "C," 169th New York, 32: Cold Harbor, 4th June; two inches of the shaft excised the same day; admitted hospital, Albany, 27th September, 1864; disarticulated, 12th January; died from phthisis, 3d March, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

550. A cast of the right shoulder, showing the result of amputation at the shoulder joint for necrosis of the humerus
b. 81. following gunshot injury. Resection of the joint was first attempted, but the bone being found extensively diseased the limb was removed. The mode of operation was by flap from the deltoid, the anterior and lower part of the incision passing through the opening made by the ball. The incisions have cicatrized, the point of the shoulder is well rounded and sufficiently prominent, and there is no hollow under the acromion.

Private J. S., "B," 108th New York: Cold Harbor, 8th June; admitted hospital, Washington, 9th; excised by Surgeon J. C. McKee, U. S. Army, 13th June, 1864.

Contributed by the operator.

4167. A cast of the stump, after successful disarticulation of the left femur. The incision, which is parallel with the
b. 82. long axis of the body, has united with a deep cicatrix. At the very centre appear some granulations, but they are understood to be superficial.

Private G. L., "C," 6th Maryland, 30: Wilderness, 5th May; remained on the field a prisoner until 13th May; admitted hospital, Alexandria, 14th June, 1864; disarticulated by Surgeon E. Bentley, U. S. Vols., 12th October, 1865. Recovered.

Contributed by the operator.

See 4386, **XII.** A. B. e. 8.

2338. A cast of the stump of the left thigh, five months after primary circular amputation just below the trochanter
b. 83. minor. The cicatrix is irregular and appears tender, but is not so described in the history. The muscular flaps are abundant.

First Sergeant A. B., "A," 102d New York: wounded and amputated on the field, Kenesaw Mountain, Ga., 27th June; cast made in New York; discharged the service, 27th November, 1864. He wears an artificial limb "with entire satisfaction."

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

3022. A cast of a thigh stump, one year after circular amputation in the upper fifth. The cicatrix is formed by granu-
b. 84. lation over a surface of three-fourths by two and a half inches, owing to the retraction of the integument. The muscular cushions are sufficient. Furnished with an artificial limb and "walks splendidly."

Corporal J. C., "I," 104th New York: femur fractured in the middle third, Gettysburg, 1st July; amputated by Surgeon Chase, 5th July; admitted hospital, New York, 14th October, 1863; cast made in New York, summer of 1864; discharged the service, 3d November, 1864.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

586. A cast of a conical stump, one year after primary amputation of the right thigh at the junction of the upper thirds,
b. 85. apparently by the circular method. The soft tissues have well retracted, leaving a very moderate covering over the extremity of the bone, but with a firm cicatrix.

Private H. H., "B," 123d New York, 27: right leg, Kenesaw Mountain, Ga., 19th June; amputated, 20th June, 1864; cast taken at Albany, summer of 1865; discharged the service, 4th October, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

1464. A cast of the stump of the right thigh, taken an unknown period after amputation, by the circular method, at the
b. 86. junction of the upper thirds. The cicatrix presents a surface of one by two and a half inches which has granulated.

Private C. W., "B," 97th New York: Cold Harbor, 3d June; amputated, 4th June, 1864.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

288. A cast of the stump of the thigh, one year after primary amputation, by the circular method, in the middle third.
b. 87. The stump is sufficient, but deeply puckered in the centre.

Private C. H. G., "C," 16th Massachusetts, 34: wounded and amputated near Fair Oaks, 16th June, 1862; cast made in New York, summer of 1863; discharged, 11th July, 1863. Artificial limb furnished, 26th May, 1863.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

4366. A cast of the stump of the right thigh, one year after primary circular amputation in the middle third. The
b. 88. stump is slightly conical and irregular on the posterior surface and for some months was excoriated and tender.

Sergeant J. K., "I," 76th New York, 30: Gettysburg, 2d July, 1863; cast made in New York; discharged the service, 6th July, 1864. Artificial limb furnished, 6th August, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

4377. A cast of the stump of the left thigh, nine months after primary circular amputation in the middle third. The
b. 89. cicatrix is small and firm, the stump well rounded, and the operation appears in every respect successful.

Private J. H., "B," 79th New York: Blue Springs, Tenn., 10th October, 1863; cast made in New York; discharged the service, 4th June, 1864. Artificial limb furnished, 13th May, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

1417. A cast of the stump of the left femur, about fifteen months after primary amputation in the middle third. The
b. 90. stump is quite well formed, but is slightly pitted in the centre.

Private W. M. W., "D," 111th New York, 24: Gettysburg, 2d July; stump healed, 1st October, 1863; cast made in New York; discharged, 3d November, 1864. Artificial limb furnished, 11th October, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

4298. A cast of the stump of the left thigh, one year after a primary circular amputation in the middle third. The
b. 91. muscular flap is scanty and the integument tightly drawn over the bone, but the stump appears healthy and firm.

Private F. F. M., "F," 100th New York, 19: leg comminuted by grape shot, Fort Wagner, S. C., 18th July; amputated by a Rebel Surgeon, 19th July, 1863; cast made in New York, 30th July, 1864. Artificial limb furnished, 22d July, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

4367. A cast of the stump of the right thigh, after a primary circular amputation at the junction of the lower thirds.
b. 92. When the wound had nearly healed, sloughing occurred, which renders the stump somewhat conoidal and the cicatrix tense and irregular.

Private A. A. H., "E," 9th New York Cavalry, 26: Stevensburg, Va., 11th October, 1863; amputated by Dr. W. F. Streeter; admitted hospital, New York, 13th May; discharged the service, 23d August, 1864. Artificial limb furnished, 17th August, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

1787. A cast of the stump of the left thigh, eighteen months after circular amputation at the junction of the lower
b. 93. thirds. The general shape of the stump is good, but the cicatrix is irregular and the integument appears tightly drawn over the bone.

Private C. B., "C," 39th New York, 26: knee fractured, Bristoe Station, Va., 14th October; thigh amputated by Acting Assistant Surgeon N. S. Barnes, Alexandria, 16th October, 1863; sequestrum, five inches in length, removed, 20th February, 1864; discharged, with an artificial limb, 20th September, 1865.

Contributed by Surgeon —— Bond.

See 3027, **XIII.** A. B. g. 42; 2344, **XIV.** A. A. e. 34.

1589. A cast of the stump of the right thigh, after primary circular amputation in the lowest third. The stump is much
b. 94. puckered but appears sufficient and well healed.

Private R. M. F., "I," 24th Michigan: Gettysburg, 1st July; amputated by Acting Assistant Surgeon D. Burpee. Cast made in Philadelphia.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

See 2624, **XIII.** A. B. f. 36.

3224. A cast of the stump of the right thigh, four months after primary antero-posterior flap amputation in the upper
b. 95. third. The traces of a small abscess at the inner side of the anterior flap, which did not communicate with the bone, may be seen. The wound has united well, leaving an excellently rounded stump. The cast is mounted at right angles to its true position.

Private J. F., "K," 1st U. S. Cavalry, 20: wounded and amputated, Newtown, Va., 10th August; admitted hospital, Frederick, 12th November; cast made at Frederick; transferred to New York, well, December, 1864.

Contributed by Acting Assistant Surgeon Ould.

1373. A plaster cast of the stump of the right thigh, nine months after primary amputation, by long posterior flap, in the
b. 96. upper third. The stump is well rounded and the cicatrix on the anterior surface firm.

Private A. T., "H," 94th New York, 18: Fredericksburg, 13th December; amputated by Surgeon Avery, 94th New York, 14th December, 1862; cast made in New York; discharged the service, 12th November, 1863. Artificial limb furnished, 26th August, 1863.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

4325. A cast of the stump of the left thigh, six months after antero-posterior flap amputation in the upper third. The
b. 97. stump is well formed.

Private S. D. W., "E," 55th Pennsylvania, 21: Petersburg, 18th June; amputated, 20th June; cast made in New York; discharged the service, 20th December, 1864. Artificial limb furnished, 21st November, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

391. A plaster cast of a conical thigh stump, taken one year after primary amputation in the upper third by flaps. The
b. 98. muscles have retracted nearly an inch, leaving the bone covered with a delicate cicatrix and without support.

Private W. H. H., "K," 14th New York Artillery, 19: Weldon R. R., 18th August; amputated, 20th August, 1864; cast taken at Albany, summer of 1865; transferred to New York Harbor, October, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

390. A cast of a badly formed irregularly conical stump, one year after (primary) (lateral) flap amputation in the upper
b. 99. third of the right thigh. The stump is somewhat baggy on the under surface and the bone is poorly covered, although the cicatrix appears firm.

Private C. McD., "I," 117th New York, 16: wounded and amputated before Petersburg, 4th July, 1864; cast taken, Albany, summer of 1865; transferred to New York, 30th October, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

2400. A cast of a thigh stump, about one year after amputation in the upper third. The operation was primary and
b. 100. probably by the antero-posterior flap method. Gangrene attacked the stump, which did not heal for seven months. The cicatrix appears firm but contracted. The stump, the cushions of which are sufficient, is very available for an artificial limb.

Private J. C., "H," 25th New York, 19: Fair Oaks, Va., 1st June, 1862; cast made in New York, summer of 1863; discharged the service, 25th June, 1863. Artificial limb furnished, 4th May, 1863.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

2910. A cast of the stump of the right leg, eight months after primary amputation, by the antero-posterior flap, at the
b. 101. junction of the upper thirds. Union is said to have occurred by the first intention. The tibia is somewhat prominent beneath the skin, but the stump is a good one.

Private W. McG., "E," 3d Rhode Island, 48: Morris Island, S. C., 2d February; amputated the same day by Surgeon M. S. Kittinger, 100th New York; cast made in New York; discharged the service, 14th October, 1864. Artificial limb furnished, 11th October, 1864.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

4320. A cast of the stump of the right thigh, after flap amputation in the middle third. There are traces of an abscess
b. 102. that existed at the upper angle for several months and from which necrosed bone was removed. The shape and size of the flap are excellent.

Sergeant P. R., "M," 3d Rhode Island Artillery, 29: torpedo carried away right leg, and thigh amputated by Surgeon S. W. Gross, U. S. Vols., Morris Island, S. C., 11th September, 1863; cast made in New York; discharged the service, 24th June, 1864. Artificial limb furnished, 28th May, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

1514. A cast of the stump of the left thigh, nine months after a primary flap amputation in the middle third. The stump
b. 103. is full and well formed.

Sergeant J. W., "D," 17th Pennsylvania Cavalry: wounded and amputated, Smithfield, Va., 29th August, 1864. Cast made in Frederick. Artificial limb furnished, 31st May, 1865.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

574. A cast of a thigh stump, five months after primary antero-posterior flap amputation in the middle third. The
b. 104. extremity has healed by granulation, leaving the lips somewhat puckered, and on the outer side the cicatrix appears to extend five inches up the limb.

Private N. W., "B," 10th New York Artillery, 26: right thigh fractured and amputated, Bermuda Hundred, Va., 2d April; cast taken, Albany, September; discharged the service, 21st October, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

3513. A cast of a thigh stump, about nine months after primary amputation in the middle third. The stump, which
b. 105. appears to have been made by lateral flaps, has cicatrized evenly and firmly, leaving at the lower angle but a single point of continued ulceration. The soft tissues have, however, retracted considerably, so that the last three inches present an abrupt cone.

Private J. W., "H," 77th New York, 34: left thigh wounded and amputated, Cedar Creek, 19th October, 1864; cast taken in Albany, summer of 1865; discharged the service, 11th August, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

2299. A cast of the stump of the left thigh, about one year after primary amputation in the middle third. The operation
b. 106. was by the antero-posterior flaps. The stump is somewhat pointed and pinched, and at the outer angle is so deeply indrawn as to suggest that sloughing may have occurred.

Private A. C., "G," 48th New York, 21: knee fractured, Port Royal, S. C., 18th June; amputated, 22d July, 1862; cast made in New York, summer of 1863; discharged, 8th July, 1863. Artificial limb furnished, 5th December, 1863.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

3708. A cast of the stump of the left femur, about one year after primary amputation in the middle third. The operation
b. 107. has been by antero-posterior flaps, and a broad cicatrix of granulation has been left at the inner angle.

Private F. S., "B," 14th New York: wounded and amputated, Williamsburg, 5th May, 1862; cast made in New York, summer of 1863; discharged, 8th July, 1863.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

4314. A cast of the stump of the right thigh, nine months after primary amputation by anterior flaps. The cicatrix is
b. 108. somewhat irregular but is healthy-looking.

Private P. McA., "A," 1st U. S. Artillery: Bayou Teche, La., 12th April, 1863; cast made in New York. Artificial limb furnished, 5th February, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

1838. A cast of the stump of the right thigh, six months after primary amputation, by antero-posterior flaps, at the
b. 109. junction of the lower thirds. The stump is well rounded and firm. On the posterior surface an extended cicatrix shows where union was for a time delayed.

Private W. K. S., "A," 5th Connecticut: Chancellorsville, 3d May; cast made in New York, fall of 1863; discharged the service, 16th November. Artificial limb furnished, 7th July, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

2670. A cast of the stump of the left thigh, eleven months after amputation at the junction of the lower thirds by antero-
b. 110. posterior flaps. The stump is well rounded and the cicatrix firm.

Private E. J., "A," 1st U. S. Artillery, 27: knee fractured and amputated, Port Hudson, 28th May, 1863; cast made in New York; discharged, with an artificial limb, spring of 1864.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

3018. A cast of the stump of the left thigh, after amputation, by antero-posterior flap, in the lowest third. The stump is
b. 111. abundant and was healed in less than two months.

Private R. T. W., "A," 76th Pennsylvania, 33: knee fractured, Pocotaligo, S. C., 22d October; amputated by Surgeon R. B. Bontecou, U. S. Vols., Beaufort, S C., 24th October; "sent North, quite well," 28th December, 1862; cast made in New York, fall of 1863; discharged the service, 8th January, 1864.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

See 2031, **XIV.** A. A. e. 25.

367. A cast of the stump of the right thigh, one year after primary amputation, by long anterior flap, in the lowest
b. 112. third. The cast is mounted upside down, the better to show the cicatrix on the posterior surface, which is transverse and firm.

Private T. P., "G," 20th Indiana: before Richmond, 25th June; amputated, 26th June, 1862; cast made in New York; recovered, 8th July, 1863.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

4368. A cast of the stump of the right thigh, eight months after primary flap amputation in the lowest third. The stump
b. 113. is excellently shaped and the cicatrix small and firm.

Private R. W. G., "F," 14th New York State Militia, 31: Gettysburg, 2d July, 1863; cast made in New York; discharged the service, 30th March, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

1478. A cast of the stump of the right thigh, amputated primarily, by antero-rectangular flaps, in the lowest third. The
b. 114. lower and outer angle of the cicatrix simulates the marks of ulceration.

Private G. M., "A," 40th New York, 32: Gettysburg, 2d July, 1863; cast made in New York, January, 1864. Artificial limb furnished, 26th January, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

2382. A cast of a moderately well-formed stump, eleven months after flap amputation in the lowest third of the right
b. 115. thigh. The original flap not having been long enough, the bone was shortened five days after the operation. There is no superfluous soft tissue. At the most dependent portion ulceration has continued longest.

Private S. B., "K," 16th New York Heavy Artillery, 18: knee fractured and thigh amputated, Chapin's Farm, Va., 7th October, 1864; cast taken in Albany in the fall; discharged the service, 2d October, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

4361. A cast of a well-rounded stump of the right thigh, about fifteen months after primary amputation, by posterior
b. 116. flap, in the lowest third.

Private H. D., "D," 1st Louisiana, 23: knee, Port Hudson, La., 14th June; amputated, 16th June, 1863; cast made in New York; discharged the service, 24th September, 1864; artificial limb furnished, 26th August, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

3765. A cast of a stump in the lowest third of the right thigh, eight months after primary amputation by antero-posterior
b. 117. flaps. The lips of the cicatrix are very deep and, especially at the outer angle, the union is not good.

Private V. L., "A," 81st New York, 25: right leg, Cold Harbor, 3d June; amputated, 5th June, 1864; cast taken in Albany, winter 1864–5; discharged the service, 10th March, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

See 2373, **XIII.** A. B. g. 45.

2361. A cast of the stump of the right thigh, one year after primary circular amputation in the middle third. The
b. 118. stump is puckered and, over the bone, appears to be insufficient.

Private C. M. S., "M," 1st New York Artillery, 19: wounded and amputated, Chancellorsville, 1st May, 1863; cast made in New York; discharged, 15th April, 1864. Artificial limb furnished, 24th March, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

1423. A cast of the stump of the left thigh, after a circular amputation in the middle third. The specimen exhibits a
b. 119. granulating surface of three inches in diameter following the arrest of sloughing.

Private L. D., "A," 9th West Virginia, 18: knee, Halltown, Va., 26th August; amputated by Acting Assistant Surgeon T. J. Dunott, Frederick, 29th August, 1864. Artificial limb furnished, fall of 1865.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

1261. A cast of the stump of the left thigh, five months after primary amputation, by flap of the skin and circular of
b. 120. muscles, in the lowest third. The stump is well rounded, with some cicatricial irregularity at the posterior portion, and, by the appearance of the cast, but very newly healed.

Private C. A. D., "H," 21st New York Cavalry, 21: knee, Winchester, 25th July; amputated by Acting Assistant Surgeon W. S. Adams, Frederick, 28th July; discharged, 17th December, 1864. Artificial limb furnished.

Contributed by the operator.

1574. A cast of a well-healed, somewhat conical thigh stump, after primary amputation, by skin flaps and circular
b. 121. section of muscle, in the lowest third for pistol ball fracture of the right knee. Much of the wound healed by first intention. There is a moderate indrawing of the cicatrix on the anterior face above the extremity.

Private W. R., "H," 2d U. S. Cavalry, 22: wounded, 14th September; amputated by Acting Assistant Surgeon W. B. McCausland, Frederick, 15th September, 1864. Recovered.

Contributed by the operator.

See 3914, **XIV.** A. A. e. 6.

4034. A cast of a well-healed stump, abruptly conical but sufficient in size, three months after primary amputation in
b. 122. the lowest third of the femur. The operation was by skin flap and circular of muscle, and the greater part of the wound healed by first intention. The left radius was also fractured and healed readily.

Private J. B., "F," 151st New York, 28: knee fractured, Monocacy, 9th July; amputated by Acting Assistant Surgeon A. R. Gray, Frederick, 10th July; discharged the service, 26th September, 1864.

Contributed by the operator.

2306. A cast of the stump of the left thigh, three months after amputation in the lowest third, by flap of the skin
b. 123. and circular of the muscles, for fracture of the knee. The greater part of the wound healed by first intention. Extension apparatus to prevent retraction was applied in the earlier part of the treatment, and the stump presents itself fully and uniformly rounded.

Private J. W. L., "C," 14th New Jersey: Frederick Junction, 9th July; amputated, 10th July; cast made at Frederick; furloughed, 7th October, 1864.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

See 3924, **XIV.** A. A. e. 16.

3216. A cast of the stump of the right thigh, four months after primary amputation in the lowest third. The operation
b. 124. was probably by skin flaps and circular section of the soft tissues. The cicatrix is small and the stump well rounded.

Sergeant N. F., "H," 37th Ohio, 27: Chattanooga, Tenn., 25th November, 1863; amputated by Dr. Weidebach; discharged the service, 1st October, 1864. Artificial limb furnished, 12th August, 1864.

Contributed by Surgeon C. W. Horner, U. S. Vols.

1837. A cast of the stump of the upper third of the right thigh, several months after a circular amputation. The
b. 125. cicatrix is more nearly transverse than is common in such cases and the stump appears a firm one.

Sergeant I. J., "A," 1st New Jersey Cavalry: Dinwiddie C. H., 3d March; admitted hospital, Washington, 4th April, 1865.

Contributed by Acting Assistant Surgeon G. K. Smith.

919. A cast of a thigh stump at the junction of the upper thirds. A circular amputation has been performed and the
b. 126. flaps brought together laterally. An irregular cicatrix, deep in the upper part, extends six inches in length on its anterior face.

Private F. O'B., "A," 4th New York: no history, except discharged, with an artificial limb, 11th June, 1863.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

3222. A cast of a stump of the left thigh, after posterior flap amputation in the middle third. A deep, nearly straight
b. 127. cicatrix extends across the upper part of the face of the stump, puckered at the inner angle.

Private D. P., "B," 9th New York Artillery, 26: Cold Harbor, 3d June, 1864; date of amputation unknown; cast made at Albany, summer of 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

115. A cast of the stump of the right thigh, probably middle third, after amputation by the posterior flap. The cicatrix
b. 128. is deep and irregular and situated on the anterior surface above the extremity.

Private T. G., "G," 36th New York: cast made in New York; discharged, 3d July, 1863.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

4317. A cast of a thigh stump in the middle third, after amputation by antero-posterior flaps. The cicatrix, of ten
b. 129. inches, embraces the whole of the incision, extends to points on the side three inches above the extremity of the specimen, appears moderately firm and presents two cicatricial spurs of an inch each in the lower flap.

Private J. M., "K," 145th New York: near Murfreesboro', 12th October, 1863; admitted hospital, New York, 7th January; discharged, 27th February, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

2399. A cast of the stump of the right thigh, about one year after amputation at the junction of the lower thirds. The
b. 130. stump is conical and the bone, although well covered by integument, protrudes from the muscular flaps.

Private L. McG., "B," 97th Pennsylvania, 16: Deep Bottom, Va., 16th August, 1864; cast made in New York, fall of 1865. Artificial limb furnished, 28th March, 1865.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

2990. A plastic cast of the stump of the left thigh, showing protrusion of necrosed bone and a large granulating
b. 131. surface, as if after sloughing or extensive retraction following a flap amputation in the lowest third.

Private E. R., "G," 12th Wisconsin: when and where wounded and amputated unknown; reamputated by Surgeon H. Culbertson, U. S. Vols., Madison, Wisconsin, 18th June, 1864. Recovered.

Contributed by the operator.

See 3698, **XIII.** A. B. f. 17.

1436. A cast of the stump of the right thigh in its lowest third, apparently mounted upside down, after a primary long
b. 132. anterior flap amputation. The limb is much emaciated, but the stump appears consolidated.

Lieutenant M. J. G., "H," 9th New York: Antietam, 17th September, 1862. Cast made in Albany.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

4306. A cast of a thigh stump in the lowest third, apparently amputated by lateral flaps. The stump is well rounded
b. 133. and the cicatrix appears firm, but at the extremity and at the lower angle it is irregular and somewhat puckered.

Private A. S., "G," 4th New Hampshire: on picket near Charleston, 1st September, 1863.

Received, without history, from the Central Park Hospital, New York.

1836. A cast of a stump of the right thigh, six months after circular amputation in the lowest third. The stump is
b. 134. generally well rounded, but at the centre of the extremity it is deeply drawn in, as if after long-continued suppuration.

Corporal J. McL. (or McS.), "C," 20th Indiana, 31: White Oak Swamp, 28th June; amputated, New York Harbor, 6th December, 1862. Cast made in New York, May, 1863. Artificial limb furnished, 20th June, 1865.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

1493. A cast of a stump, as of the right thigh in the lowest third. The operation was by posterior flap, which slightly
b. 135. retracted from the anterior portion, leaving a deep cicatrix transversely across the stump a little above its face.

Contributor and history unknown.

170. A cast of a stump, apparently of the right thigh in the upper third after reamputation for diseased bone. The
b. 136. operation appears to have been by the circular method, and the cicatrix is somewhat depressed but apparently firm in the centre.

Sergeant D. M., "B," 2d Pennsylvania Reserves: Mechanicsville, 22d June; amputated in the lowest third, 30th June, 1862; reamputated, 25th September, 1863. Cast made in Philadelphia.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

4300. A cast of the stump of the right thigh, thirteen months after circular amputation in the upper third. The flaps
b. 137. at one time retracted, leaving three-fourths of an inch of the femur necrosed, which became detached. The specimen shows the integument tightly drawn over the bone.

Sergeant C. K., "D," 20th New York State Militia, 29: Gettysburg, 1st July; amputated by Surgeon Laughlin, 20th New York State Militia, 7th July, 1863; cast made in New York; discharged, 9th August, 1864. Artificial limb furnished, 24th August, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

1256. A cast of the stump of the left thigh, after circular amputation in the upper third. The stump is expanded, as
b. 138. if from hyperostosis of the femur, but the cicatrices are firm and smooth. A protuberance at one point may indicate an undue prominence of the bone, but the history furnishes no special clue.

Private J. H., "H," 5th New Jersey, 30: knee, Williamsburg, 5th May; amputated, 25th May, 1862; cast made in New York, summer of 1863; discharged the service, 7th July, 1863. Artificial limb furnished, 10th March, 1863.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

2859. A cast of the stump of the left thigh, one year after circular amputation in the middle third. The specimen presents
b. 139. the appearance of a scantiness of flap over the extremity, but the cicatrix looks firm.

Private J. E. C., "E," 16th Connecticut, 22: knee, Antietam, 17th September; amputated by Surgeon Ellsworth, October, 1862; cast made in New York, fall of 1863; discharged the service, October, 1863. Artificial limb furnished, 7th October, 1863.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

278. A cast of a thigh stump, nine months after amputation in the middle third, apparently by the circular method. The
b. 140. bone is sufficiently covered, and the cicatrix, which is somewhat puckered, appears firm, except at the extremity, which bears the aspect of possible ulceration.

Private A. H., "D," 6th New York Cavalry, 31: Jerusalem Church, Va., 22d July; amputated three inches above the left ankle, for gangrene, 2d September, 1864; reamputated in the thigh for necrosis of the tibia, 1st January; cast taken in Albany in the fall; transferred to New York, 28th October, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

4324. A cast of the stump of the left thigh, eight months after a second amputation, by the circular method, in the middle
b. 141. third. The appearance of the cast is that the integument is closely drawn over the bone, but that the stump is well healed.

Private M. H., "K," 76th New York, 24: South Mountain, 14th September; amputated above the knee, 18th September, 1862; two and a half inches of femur removed shortly afterward; reamputated, 12th September, 1863; cast made in New York; discharged the service, 24th June, 1864. Artificial limb furnished, 28th May, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

4185. A cast of the stump of the right thigh, ten months after a second circular amputation at the junction of the lower
b. 142. thirds. The cicatrix on the direct face of the stump is much contracted and appears firm.

Private T. S., "F," 137th New York, 19: amputated in the lowest third, by circular method, Gettysburg, 3d July; reamputated for retraction of integument and necrosis by Dr. Wood, New York, 7th November, 1863; cast made in New York; discharged the service, 14th September, 1864. Artificial limb furnished, 1st August, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

1392. A cast of the stump of the right thigh, nearly one year after a second amputation by the flap method in the upper
b. 143. third. The stump is irregular in its folds but apparently firm, and although very short, "he could use his artificial limb without much trouble."

Private A. McM., "B," 36th New York, 23: grape shot, lowest third, 30th June; circular amputation in the middle third, 3d July; reamputated by flap, 17th July, 1862; cast made in New York; discharged the service, 3d July, 1863. Artificial limb furnished, 25th May, 1863.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

2283. A cast of a badly healed stump, five months after (apparently flap) amputation in the middle third of the left thigh.
b. 144. The inferior portion is baggy, and loss of substance over the bone has induced a deep and poorly healed cicatrix at that point.

Corporal H. S., "H," 64th New York, 31: Hatcher's Run, 25th March; amputated, 12th April; cast taken in Albany, September; discharged, 26th September, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

See 171, **XIII.** A. B. g. 75.

5. A cast of a well-formed stump, nine months after flap amputation in the middle third of the right thigh. The
b. 145. cicatrix, extending over the face and superior portion, is about four inches in length and quite firm.

Sergeant W. T., "B," 106th New York, 26: knee crushed, Winchester, 19th September; amputated, 25th November, 1864; cast taken in Albany, summer of 1865; discharged the service, 6th August, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

417. A cast of a very well-rounded stump of the right thigh in the middle third, as if amputated with the posterior flap.
b. 146. The inner angle of the cicatrix is well marked and the extremity presents a cupped appearance. The cast was probably made about a year after the operation.

Private A. Van V., "A," 134th New York, 19: Gettysburg, 3d July, 1863; amputated in the middle third, 8th July, 1864; admitted hospital, Albany, 16th October, 1864; discharged the service, 11th August, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

3195. A cast of the right thigh, showing a well-rounded stump, as if made with an anterior flap, but imperfectly healed
b. 147. at the extremity. Two amputations were performed on this limb, and it is difficult to decide which the cast represents. The history claims it for the first, but its location appears to correspond with the second.

Private C. M., "G," 64th New York, 26: knee fractured, Hatcher's Run, 25th March; amputated in the lowest third, 30th March; admitted hospital, Albany, 5th August; amputated five inches higher by Assistant Surgeon J. H. Armsby, U. S. Vols., 26th September; transferred to Albany City Hospital, 27th November, 1865. Cast made at Albany.

Contributed by the operator.

See 2853, **XIII.** A. B. f. 37.

4358. A cast of the stump of the left thigh, thirteen months after a second antero-posterior flap amputation in the middle
b. 148. third. The posterior flap is somewhat retracted, making the cicatrix deep and the face of the stump irregular.

Sergeant J. A., "F," 54th New York: Gettysburg, 3d July; amputated lowest third, 8th; reamputated for sloughing and necrosis, 2d August, 1863. Cast made in New York. Artificial limb furnished, 10th September, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

1067. A cast of the stump of the right thigh, nearly three years after amputation at the junction of the lower thirds by
b. 149. long internal (posterior) and short external (anterior) flaps. The stump is conical, but the bone is well covered.

Sergeant J. G. W., "I," 27th New York, 25: tibia and fibula fractured, Bull Run, 21st July; amputated for sloughing and necrosis, while on furlough, by Dr. Stebbins, Friendship, N. Y., 5th November, 1861; stump healed in ten weeks; cast made in New York; discharged, 5th September, 1864. Artificial limb furnished, 5th September, 1864.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

1129. A cast of the stump of the right thigh, sixteen months after antero-posterior flap amputation at the junction of the
b. 150. lower thirds. One point at the centre of the cicatrix presents an appearance of delayed ulceration.

Private O. P. R., "H," 10th Pennsylvania: Gaines' Mill, 27th June; amputated by Surgeon Daniel McRuer, U. S. Vols., 23d July, 1862. Furnished with an artificial limb, 12th February, 1864.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

See 2377, **XXV.** A. B. b. 151.

2377. A cast of the stump of the right thigh, after amputation, by the antero-posterior flap method, at the junction of the
b. 151. lower thirds and the removal of necrosed bone. The stump is well rounded and, with the exception of two small nipple-like projections in the cicatrix, as if from obstinate ulceration, firm. There is obscurity as to the time the cast was made.

Private O. P. R., "H," 10th Pennsylvania: Gaines' Mill, 27th June, 1862; amputated by Surgeon Daniel McRuer, U. S. Vols., 23d July, 1862. Furnished with an artificial limb, 12th February, 1864.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

See 1129, **XXV.** A. B. b. 150.

1529. A cast of the stump of the right thigh, after a second amputation, apparently at the junction of the lower thirds.
b. 152. The operation appears to be by antero-posterior flaps, and the muscles to have been in a softened condition at the time the cast was made.

Private F. W., "D," 4th Pennsylvania Cavalry: Upperville, Va., 21st June; amputated by Assistant Surgeon P. C. Davis, U. S. Army, Washington, 7th July; reamputated by Acting Assistant Surgeon C. B. King, Philadelphia, 5th October, 1863.

Contributed by the second operator.

See 2602, **XIII.** A. B. g. 80.

37. A cast of the stump of the right thigh, six months after amputation, by anterior flap, at the junction of the lower
b. 153. thirds. The stump is well formed and the cicatrix, which runs transversely across its face, is small and firm.

Corporal T. J. B, "K," 100th New York: Fort Wagner, S. C., 18th July; amputated for mortification by a Rebel Surgeon, 23d July, 1863. Cast made in New York Artificial limb furnished, 5th February, 1864.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

294. A cast of the stump of the left thigh, fifteen months after an antero-posterior amputation in the lowest third. The
b. 154. cicatrix is broad and extends directly across the face of the stump. Near the centre is the mark of delayed ulceration, whence a sequestrum was removed.

Color Sergeant H. C., "C," 125th New York, 22: knee fractured, Wilderness, 5th May; amputated in the lowest third by Surgeon E. Bentley, U. S. Vols., Alexandria, 17th May, 1864; sequestrum removed, Albany, 6th February; cast made in Albany; discharged the service, 22d September, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

See 602, **XIII.** A. B. f. 81; 666, **XIII.** A. B. g. 40.

2692. A cast of the stump of the left thigh, about eight weeks after amputation in the lowest third for fracture of the
b. 155. knee. After the operation there was great sloughing of the flaps. The cast shows a loss of skin for two inches, but profuse and florid granulations cover the bone.

Private H. P. McM., "C," 61st Georgia, (Rebel,) 23: Monocacy, 9th July; amputated, Frederick, 25th July; transferred to Baltimore, 20th September, 1864.

Contributed by Acting Assistant Surgeon T. E. Mitchell.

See 3871, **XIV.** A. B. f. 59.

1562. A cast of the stump of the left thigh, taken after death by pyæmia six weeks after flap of the skin and circular
b. 156. of the muscle amputation in the middle third. The limb is much flattened, the stump partially healed and granulating.

Private N. D., "E," 102d Pennsylvania, 33: knee fractured, Winchester, 19th September; amputated by Acting Assistant Surgeon T. J. Dunott, Frederick, 28th September; died from pyæmia, 7th November, 1864.

Contributed by the operator.

See 3944, **XIV.** A. B. f. 9.

403. A cast of the stump of the left thigh, four weeks after amputation in the lowest third by a large anterior muscular
b. 157. flap and a long and wide periosteum flap (after the method of Assistant Surgeon McGill). The stump is excellently rounded and the cicatrix firm and smooth, excepting a few superficial granulations near the angles.

Farrier J. H. A., "I," 21st Pennsylvania Cavalry, 19: conoidal ball severed the popliteal artery and bruised the femur, Amelia C. H., Va., 5th April, 1865; amputated, with periosteum flaps, by Acting Assistant Surgeon H. M. McElderry, Baltimore, 16th February; discharged the service, 14th March, 1866.

Contributed by Assistant Surgeon Geo. M. McGill, U. S. Army.

See 477, **XIV.** A. B. f. 36; 483, **XVI.** A. B. f. 177.

937. A rough plaster cast of a thigh stump, evidently illustrating the effects of hospital gangrene. The femur protrudes
b. 158. and the integument and a certain portion of the soft tissues have sloughed for eight inches on the anterior surface.

Contributor and history unknown.

See class **XXIII.** A. B.

2461. A cast of a stump, as if of the right thigh in the lowest third. The operation appears to have been by antero-
b. 159. posterior flaps. There is a granulating surface, two inches broad by five long, over the face of the stump, as though following sloughing of the integument.

Contributor and history unknown.

2828. A cast of the stump of the left femur, after amputation in the middle third. The cast is not a very well-defined
b. 160. one, but it shows necrosis of the bone nearly to the trochanters.

Major G. S. D., 2d New York Heavy Artillery: wounded and amputated before Petersburg, 20th June; died, 6th December, 1864. The cast was made at Albany after death.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

See 1427, **XIII.** A. B. d. 20.

1358. A cast of the left knee, showing the stump of the leg after amputation, as if by posterior flap, in the upper third.
b. 161. The stump is rather too baggy posteriorly, and the tibia is quite prominent under the skin.

Private J. R. W., "C," 2d Vermont: Fredericksburg, 13th December, 1862. Cast made in New York.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

2458. A cast of the stump of the right knee, six months after disarticulation. Antero-posterior flaps were made. The
b. 162. stump is well formed and firm and useful.

Private W. N., "A," 71st Pennsylvania: ankle fractured and leg amputated in the middle third, White Oak Swamp, Va., 29th June; admitted hospital, Philadelphia, from Richmond, 30th July; a slender sequestrum removed from the tibia, 13th November, 1862; disarticulated by Acting Assistant Surgeon T. G. Morton, 27th August, 1863. Cast made, March, 1864.

Contributed by Surgeon I. I. Hayes, U. S. Vols.

See 2778, **XV.** A. B. f. 36; 668, **XV.** A. B. g. 26.

See class **XIV.** A. B. e.

4299. A cast of the stump of the left leg, seven months after circular amputation just below the knee. The integument
b. 163. appears to have sloughed on the face of the stump, and the cast simulates the protrusion of the tibia. There is no warrant in the history, however, that the bone was exposed.

Corporal T. W. D., "K," 30th Maine, 22: Pleasant Hill, La., 9th April; admitted hospital, with small indolent ulcer of stump, New York, 20th September; cast made in New York; discharged the service, 22d November, 1864. Artificial limb furnished.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

473. A cast of a stump which appears to have been made by a circular amputation just below the knee. The flaps
b. 164. are full and the puckered cicatrix is small.

Private J. J. M., "D," 76th Pennsylvania: Fort Wagner, S. C., 11th July; amputated middle (?) third, 13th July, 1863; discharged the service, 17th January, 1864.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

4375. A cast of the stump of the left leg, six months after primary circular amputation in the upper third. The stump
b. 165. is so well formed that it represents one made by carefully adapted flaps.

Corporal D. O. S., "F," 3d U. S. Infantry, 28: Gettysburg, 2d July, 1863; cast made in New York; discharged the service, 8th January, 1864. Artificial limb furnished, 27th February, 1865.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

1528. A plaster cast of the right leg, about seventeen months after amputation in the upper third. The bones are well
b. 166. covered, but the posterior flap appears redundant in its lower portion while the cicatrix is irregular and depressed.

Private A. O., "D," 83d New York, 28: wounded and amputated, Wilderness, 5th May, 1864; cast made, Albany, fall of 1865; transferred to New York, 28th October, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

1856. A cast of the stump of the left thigh, primarily amputated, by the circular method, in the upper third, nine months
b. 167. after the operation. Much of the wound healed by the first intention. Necrosis of the femur prevented complete union, and the stump shows what may be taken as a point of protrusion in the midst of its otherwise well-rounded shape.

Private S. D. S., 7th New Hampshire, 30: Fort Wagner, 18th July, 1863. Cast made in New York, spring of 1864; discharged the service, 13th April, 1864. Artificial limb furnished, 4th April, 1864.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

1026. A cast of the stump of the left leg, ten months after primary circular amputation at the junction of the middle
b. 168. and upper thirds. The stump is somewhat retracted posteriorly but appears firm.

Private A. C., "A," 1st U. S. Artillery: Port Hudson, La., 27th May. Cast made in New York. Artificial limb furnished, 19th March, 1864.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

1425. A cast of the stump of the left leg, after primary amputation at the junction of the upper thirds. Directly posterior
b. 169. to the bones the cicatrix is very deeply puckered.

Private F. W., "G," 119th Pennsylvania, 21: Wilderness, 5th May, 1864. Cast made in Washington.

Contributed by Assistant Surgeon J. C. McKee, U. S. Army.

1510. A cast of the stump of the left leg, six months after a primary circular amputation in the upper third. The
b. 170. cicatrix is drawn to the posterior portion, indicating a deficiency of flap and inducing a prominence of the tibia.

Private F. R., "I," 7th Connecticut: Fort Wagner, S. C., 11th July, 1863. Cast made in New York. Artificial limb furnished, 4th January, 1864.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

4372. A cast of the stump of the right leg, six months after primary circular amputation at the junction of the upper
b. 171. thirds. The stump has healed well with a transverse cicatrix.

Private W. R., "D," 82d New York, 41: Spottsylvania, 10th May; amputated by Surgeon —— Plumb, 82d New York, 11th May; cast made in New York; discharged the service, 10th November, 1864. Artificial limb furnished, 23d September, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

4188. A cast of the stump of the right leg, after primary amputation, by the circular method, at the junction of the upper
b. 172. thirds. The stump is well formed and smooth.

Private J. G. S., "K," 7th New Hampshire, 20: Morris Island, S. C., 1st October, 1863. Artificial limb furnished, 25th April, 1864. Cast made in New York

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

2540. A cast of a stump of the right leg, nine months after circular amputation in the middle third. The stump is not
b. 173. well formed, being puffy on the outer side, flattened on the posterior surface and at the extremity cicatrized with irregularity and apparent liability to continued ulceration. This condition is due to protrusion of bone and gangrene.

Private B. B., "B," 22d New York, 24: wounded and amputated, Antietam, 17th September; one inch of protruding bone removed the next week; gangrene for three weeks from 15th December, 1862; cast made in New York, spring of 1863; discharged the service, 6th May, 1863. Artificial limb furnished, 4th March, 1863.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

See **XXIII.** A. B.

4318. A cast of the stump of the left leg, ten months after circular amputation in the middle third. The cicatrix presents
b. 174. the curious marking of an equal-armed cross.

Private G. W. S., "F," 76th New York, 20: amputated, Gettysburg, 5th July, 1863; cast made in New York; discharged the service, 20th May, 1864. Artificial limb furnished, 5th June, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

4370. A cast of the stump of the right leg, one year after circular amputation in the middle third. The fibula was
b. 175. slightly longer than the tibia, and there were three operations performed for necrosis. The specimen shows broad cicatrization at the inner angle.

Sergeant S. J. B., "H," 108th New York, 21: amputated, Gettysburg, 6th July, 1863; cast made in New York; discharged the service, 15th July, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

4308. A cast of the stump of the left leg, nine months after a primary circular amputation at the junction of the lower
b. 176. thirds. The cast appears to represent a small ulcer at the extremity, but of it the history makes no mention. With that exception the stump is excellent.

Private E. F. B., "B," 76th Pennsylvania: Fort Wagner, S. C., 5th October; amputated by a Rebel Surgeon, 6th October, 1863. Cast made in New York. Artificial limb furnished, 18th July, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

513. A cast of the stumps of both legs, nine months after primary circular amputation for shell fracture. The right leg
b. 177. was amputated in the lowest third, where there is some deficiency of the posterior flap, but the cicatrix appears firm and the covering sufficient to be useful. The left leg was amputated below the knee, and the soft tissue is sufficient and well united.

Private J. G. S., "D," 77th New York, 23: wounded, and amputated by Surgeon —— Kelly, 95th Pennsylvania, Wilderness, 6th May; admitted hospital, Washington, 25th May; discharged the service, 3d November, 1864. Cast made in New York, winter of 1864–5.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

517. A cast of the stump of the right leg, after primary amputation just above the malleoli. The integument, which
b. 178. appears to have been somewhat superfluous, has cicatrized in numerous folds.

Private W. E., "B," 20th Massachusetts: Spottsylvania, 10th May, 1864. Cast made in Washington.

Contributed by Assistant Surgeon J. C. McKee, U. S. Army.

3092. A cast of the stump of the right leg, one month after primary amputation, by lateral flaps, in the upper third. The
b. 179. stump does not appear to have been quite healed at its extremity when the cast was taken, but it is well rounded and shapely.

Private J. B., "G," 5th New York Heavy Artillery, 20: Cedar Creek, 19th October; admitted hospital, Frederick, 12th November; cast made in Frederick; transferred to Baltimore, 17th November, 1864. Artificial limb furnished, 8th June, 1865.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

4374. A cast of the left leg, eight months after primary amputation, by posterior flaps, in the upper third. The stump
b. 180. healed by the first intention, leaving a sinus extending to a small necrosed fragment of tibia which was afterward removed. The stump seems excellent.

Corporal N. W. D., "E," 61st New York, 21: Gettysburg, 2d July, 1863; cast made in New York; discharged the service, 2d March, 1864. Artificial limb furnished, 18th February, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

2341. A cast of the stump of the right leg, three months after primary amputation in the upper third for destruction of
b. 181. the middle by a shell. An abundant posterior flap was formed from the calf muscles, and union has occurred by a firm cicatrix on the anterior face.

Private R. F., "D," 151st New York: Frederick Junction, 9th July; admitted hospital and amputated, Frederick, 10th July; furloughed with healed stump and perfect motion of knee, 7th October, 1864. Artificial limb furnished, 27th June, 1865.

Contributed by Acting Assistant Surgeon G. M. Paullin.

3081. A cast of a stump of the left leg, ten months after amputation in the upper third. The operation appears to have
b. 182. yielded an anterior skin flap and muscular tissue from the posterior surface. The stump is too short for the convenient adaptation of an artificial limb, but when flexed appears well suited as a support.

Private G. T., "I," 7th New York Artillery, 22: wounded in the ankle and amputated before Petersburg, 16th June, 1864; cast made, Albany, spring of 1865; transferred to New York, 6th May, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

4304. A cast of the stump of the right leg, thirteen months after amputation, by antero-posterior flaps, in the upper third.
b. 183. Hospital gangrene nearly destroyed the posterior flap one month after the operation. The stump is puckered, but the cicatrix seems firm. The left leg and thigh were wounded by two balls at the same time.

Private G. G., "A," 67th Ohio, 20: Fort Wagner, S. C., 18th July, 1863; cast made in New York; discharged the service, 23d August, 1864. Artificial limb furnished, 12th August, 1864.

Contributed by Acting Assistanf Surgeon Geo. F. Shrady.

4371. A cast of the stump of the right leg, one year after primary amputation, by posterior flap, in the upper third. The
b. 184. wound has united well and the stump presents an excellent appearance.

Corporal J. H. W., "E," 1st Louisiana, 25: Port Hudson, La., 14th June, 1863; cast made in New York; discharged the service, 9th August, 1864. Artificial limb furnished, 27th August, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

1420. A cast of the stump of the right leg, after primary amputation, by posterior flap, in the upper third. The cicatrix
b. 185. is firm, but the lips of the stump protrude greatly.

First Sergeant W. B., "B," 2d U. S. Colored Troops: wounded and amputated, 9th April, 1863. Artificial limb furnished, 22d January, 1865.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

4373. A cast of the stump of the left leg, fifteen months after primary amputation, by antero-posterior flap, at the junc-
b. 186. tion of the upper thirds. The cicatrix extends transversely across the face of the stump, which is very well formed.

Private B. F. F., "H," 7th New Hampshire, 21: Fort Wagner, S. C., 18th July; amputated by Assistant Surgeon James F. Weeds, U. S. Army, 19th July, 1863; cast made in New York; discharged the service, 7th October, 1864. Artificial limb furnished, 1st September, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

2460. A cast of the stump of the right leg, four months after a primary flap amputation in the middle third. The stump,
b. 187. which has healed well, is sufficient and uniformly rounded.

Private J. R., "B," 49th New York, 40: Charlestown, Va., 21st August; cast made in Frederick; discharged the service, 19th December, 1864. Artificial limb furnished, April, 1865.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

3292. A cast of the stump of the left leg, six months after primary amputation in the middle third. The posterior flap
b. 188. has retracted somewhat, but the union seems good.

Sergeant I. T. S., "I," 150th New York, 20: Savannah, Ga., 13th December, 1864; admitted hospital, Albany, 9th May, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

4307. A cast of the stump of the left leg, ten months after primary amputation, as it is said, by the posterior flap, at the
b. 189. middle third. The cast presents the appearance of a circular amputation.

Private C. W., "E," 45th New York, 20: Gettysburg, 1st July; amputated by Surgeon Beach, 2d July, 1863. Cast made in New York. Artificial limb furnished, 16th May, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

1454. A cast of the stump of the right leg, about six months after flap amputation in the middle third. The stump is
b. 190. very smooth and well rounded. At the outer angle and on the anterior face are two points which appear to represent where ulceration has occurred, but which are healed.

Private F. S., "D," 10th U. S. Infantry, 27: Gettysburg, 2d July; amputated by Assistant Surgeon C. Bacon, U. S. Army, 3d July, 1863. Recovered. Cast made in New York, winter of 1863–64. Artificial limb furnished, 27th January, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

3512. A plaster cast of a stump, about nine months after amputation, by posterior flap, in the middle third of the left leg
b. 191. for wound in the foot. The flap appears to have drawn away at one time from the anterior portion, leaving a large and irregular cicatrix and somewhat puckered stump.

Sergeant C. H. N., "H," 169th New York, 21: wounded and amputated, Fort Fisher, N. C., 16th January; cast made in Albany in the fall; discharged, 3d November, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

1145. A cast of a stump of the right leg, seven months after its amputation in the middle third. The cicatrix, which is
b. 192. firm, is on the posterior surface and slightly drawn in.

Sergeant T. F., "I," 14th New York Heavy Artillery, 21: wounded and amputated, Fort Steedman, Va., 25th March; cast made in Albany, in the fall: discharged the service, 7th November, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

4312. A cast of the stump of the left leg, about one year after amputation, by posterior flap, in the middle third. On
b. 193. the anterior face of the limb is a cicatrix, as if after a sloughing ulcer.

Private T. D., "I," 70th New York, 21: foot, Fair Oaks, 1st June; amputated in the lowest third, 2d June, 1862; reamputated for gangrene; cast made in New York; discharged the service, 11th July, 1863.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

4323. A cast of the stump of the right leg, fifteen months after a primary antero-posterior flap amputation of the lower
b. 194. thirds. The specimen presents the appearance of a superfluity of the posterior inferior flap. On the anterior superior portion the cicatrix is deep.

Private B. M., "A," 108th New York, 18: ankle, Gettysburg, 3d July; amputated by Surgeon Munson, 108th New York, 4th; necrosed fragments from extremity of tibia, 24th July, 1863; an indolent ulcer, with hardened edges, existed in the centre of the cicatrix for many months. discharged, with stump in good condition, 3d November, 1864. Artificial limb furnished.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

2443. A cast of the stump of the left thigh, about six weeks after primary antero-posterior flap amputation at the junction
b. 195. of the lower thirds. There was some retraction of the anterior flap, but the wound was united with little puckering.

Private E. N., "F," 3d New Jersey Cavalry: wounded and amputated, Martinsburg, Va., 24th August; admitted hospital, Frederick, 4th September. Cast made in Frederick, October, 1864.

Contributed by Acting Assistant Surgeon McCausland.

1524. A cast of the stump of the right leg, one year after amputation in the lowest third by antero-posterior flaps. The
b. 196. stump is well formed, smooth and serviceable.

Private J. W. C., "C," 82d New York, 20: ankle fractured and amputated, Cold Harbor, 3d June, 1863; cast made in New York; discharged the service, 30th June, 1865. Artificial limb furnished, 4th November, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

4315. A cast of the stump of the left leg, nine months after primary antero-posterior amputation in the lowest third. The
b. 197. stump is well formed.

Corporal W. G. R., "F," 4th New Hampshire, 20: ankle fractured by torpedo, and amputated by Surgeon S. W. Gross, U. S. Vols., Morris Island, S. C., 8th September; cast made in New York; discharged the service, 1st June, 1864. Artificial limb furnished, 13th May, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

4309. A cast of the stump of the right leg, six months after primary antero-posterior flap amputation in the lowest third
b. 198. for shell fracture of the foot. The stump is a very excellent one.

Private J. W., "C," 14th New York: amputated by Surgeon Farley, Gettysburg, 1st July, 1863. Cast made in New York. Artificial limb furnished, 25th January, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

524. A cast of the stump of the right leg, two months after a primary antero-posterior amputation in the lowest third
b. 199. The stump is well formed and apparently sound.

Private J. F. C., "G," 7th Maine, 30: Cedar Creek, 19th October, 1864; amputated by Surgeon Armstrong, 106th New York; cast made in Frederick; discharged the service, 8th March, 1865. Artificial limb furnished, 31st January, 1865.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

4302. A cast of the stump of the left leg, five months after primary amputation in the lowest third. The operation
b. 200. appears to have been by lateral flaps. The stump is well formed and seems serviceable.

Private J. C., "B," 10th New York, 21: Morton's Ford, Va., 6th February; cast made in New York; discharged the service, 10th July, 1864. Artificial limb furnished, 11th August, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

1775. A cast of the stump of the right leg, apparently after a circular amputation in the upper third. The cicatrix is
b. 201. irregular, and there appears loss of substance, as if by sloughing.

Private J. I., "A," 1st Pennsylvania Artillery: Fredericksburg, 13th December, 1862; cast made in New York; discharged, 11th July, 1863.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

4200. A cast of the stump of the left leg, ten months after a circular amputation in the upper third. The face of the
b. 202. cicatrix is somewhat roughened but the stump appears sufficient.

Private P. E., "K," 13th Massachusetts: Antietam, 17th September, 1862; cast made in New York; discharged the service, 25th July, 1863.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

2456. A cast of the stump of the right leg, about one year after amputation, by the circular method, at the junction of
b. 203. the upper thirds. The stump is sufficient and well rounded and the cicatrix small and apparently firm.

Private M. M., "F," 76th New York: Gettysburg, 1st July, 1863; cast made in New York, summer of 1864; discharged the service, 26th September, 1864. Artificial limb furnished, 16th January, 1864.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

2711. A cast of the stump of the right leg, an unknown period after circular amputation at the point of election. The
b. 204. stump is flattened on the posterior surface, is irregular and cicatrized, with deep lips at the extremity. Artificial limb furnished, 18th July, 1863.

Private W. D., "A," 5th U. S. Artillery, 29.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

4364. A cast of the stump of the left leg, nine months after circular amputation in the lowest third. A small sloughing
b. 205. ulcer remained on the extremity for some months where the cast shows traces of delayed granulation.

Sergeant W. S., "I," 64th New York: ankle, Gettysburg, 2d July; cast made in New York. Artificial limb furnished, 10th March, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

2714. A cast of the stump of the right leg, after circular amputation, according to the history, (but by appearance long
b. 206. posterior flap in the lowest third.)

Private T. E., "I," 105th New York. "Artificial limb worn with comfort."

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

3239. A cast of the stump of the left leg, eight months after circular amputation in the lowest third. The stump, which
b. 207. is excellently rounded, healed slowly from an attack of gangrene which yielded to bromine. The cicatrix of an ulcer is observable on the anterior face two inches from the extremity.

Captain J. W. B., "C," 29th U. S. Colored Troops: tarsus lacerated, Petersburg, 3d July, 1864; cast made in Albany, March; discharged, 9th March, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

2746. A cast of the left leg, after amputation, as if by the posterior flap, in the upper third. The cicatrices resemble
b. 208. those following a circular amputation. The integument appears tightly drawn over the bone on the anterior surface.

Private J. W., "A," 8th Connecticut: Antietam, 17th September, 1862. Further history unknown.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

1966. A cast of the stump of the left leg, after amputation by the posterior flap in the upper third. The flap is sufficient
b. 209. and the cicatrix firm.

Private H. B., "H," 40th New York: Second Bull Run, 30th August, 1862; discharged the service, 7th July, 1863. Cast made in New York.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

3646. A cast of the stump of the right leg, after amputation, by long posterior flap, in the upper third. The cicatrix,
b. 210. which is thrown on the anterior surface above the extremity, is firm and tolerably smooth.

Private J. O'L., "I," 8th U. S. Infantry.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

2303. A cast of the stump of the left leg, made nearly two years after amputation by flaps. The stump is well rounded
b. 211. and useful. The cicatrix is somewhat drawn but firm.

Private S. T., "K," 22d New York, 22: South Mountain, 14th September, 1862. Cast made when a member of 2d Battalion, Veteran Reserve Corps, New York, summer of 1864. Artificial limb furnished, 6th June, 1863.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

4305. A cast of the stump of the right leg, after amputation, by antero-posterior flap, near the junction of the lower
b. 212. thirds. The cicatrix is on the anterior face above the extremity.

Private J. S., "K," 93d Pennsylvania: Fair Oaks, 3d June; amputated, 4th June, 1864. Artificial limb furnished.

Contributed by Acting Assistant Surgeon Geo. F. Shrady

4359. A cast of the stump of the left leg, nine months after antero-posterior amputation at the junction of the lower
b. 213. thirds. The stump is a good one.

Private F. A. G., "B," 75th New York: Baton Rouge, La., 2d July, 1863. Cast made in New York. Artificial limb furnished, 6th April, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

4316. A cast of the stump of the left leg, eight months after a circular amputation in the upper third. The flaps, which
b. 214. are sufficient, have united with transverse cicatrization.

Private H. T., "K," 6th Maine, 24: foot, Second Fredericksburg, 3d May; amputated, New York Harbor, September, 1863; cast made in New York; discharged the service, 14th May, 1864. Artificial limb furnished, April, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

4303. A cast of the stump of the left leg, eight months after antero-posterior flap amputation in the upper third. The
b. 215. stump is excellently well rounded and apparently firmly united.

Private G. W. M., "K," 126th New York, 20: Gettysburg, 2d July; amputated for gangrene, 10th September, 1863; cast made in New York; discharged the service, 3d May, 1864. Artificial limb furnished, 4th March, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

3173. A cast of the stump of the right leg, after circular amputation in the upper third The flaps are sufficient and
b. 216. the cicatrix firm.

Private M. B., "B," —— Maine Artillery: wounded and amputated in the lowest third, Cold Harbor, 30th May; reamputated for sloughing by Acting Assistant Surgeon A. Ansell, Washington, 6th July; perfectly healed, 20th August, 1864. Cast made in Washington.

Contributed by Assistant Surgeon J. C. McKee, U. S. Army.

4313. A cast of the stump of the right leg, three months after amputation, by the posterior flap, in the upper third. The
b. 217. stump is very good.

Corporal H. B., "G," 162d New York, 30: Pleasant Hill, 8th April; amputated by Surgeon F. Bacon, U. S. Vols., New Orleans, 13th May; cast made in New York; discharged, 15th August, 1864. Artificial limb furnished.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

1502. A cast of the left leg, taken nearly two years after flap amputation in the upper third. The extremity of the tibia
b. 218. shows prominently beneath the skin. The posterior outer angle appears somewhat puffy. The cicatrix is a little drawn.

Private P. O'R., "F," 7th New York Heavy Artillery, 40: leg shattered, Wilderness, 6th May; amputated, 5th June, 1864; cast made in Albany, spring of 1865; transferred to New York, 23d May, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

2517. A cast of the right leg, fifteen months after amputation in the middle third. The stump is well formed and firm.
b. 219. There is a cicatrized point on the anterior surface one inch above the extremity.

Private V. K., "H," 147th New York, 24: ankle shattered, Petersburg, 18th June; amputated, 2d July, 1864; cast made in Albany, fall of 1865; discharged, 27th October, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

277. A cast of a stump of the left leg, twenty-one months after a circular amputation in the middle third. The stump
b. 220. is irregular and somewhat deficient on the posterior surface, due to hospital gangrene and necrosis, which kept it open for a year and gave escape to fragments of bone.

Private T. C., "K," 42d Illinois, 32: ankle, Murfreesboro', 1st January; amputated by Surgeon —— Fitch, 15th January, 1863; cast made in New York, fall of 1864; discharged the service, 21st October, 1864. Artificial limb furnished, 10th October, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

See class **XXIII.** A. B.

1596. A cast of the stump of the right leg, about nine months after a flap amputation in the middle third. The anterior
b. 221. flap appears a little scanty, straining the cicatrix and causing a small space of granulation over the extremity. Otherwise the stump is sound.

Private C. Z., "E," 8th Pennsylvania, 19: ankle, Fredericksburg, 13th December; amputated, 21st December, 1862. Cast made in New York, fall of 1863. Artificial limb furnished, 7th October, 1863.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

268. A cast of the stump of the left leg, sixteen months after an apparently circular amputation in the middle third.
b. 222. The stump, which is smooth and appears to be firm, slopes upward to the rear.

Private I. M. O., "B," 11th New Hampshire, 23: Fredericksburg, 13th December; amputated in the lowest third, 19th December, 1862; reamputated, 2d January, 1863; cast made in New York, spring of 1864; discharged, 3d May, 1864. Artificial limb furnished, 16th May, 1864.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

4310. A cast of the stump of the left leg, nine months after circular amputation at the junction of the lower thirds. The
b. 223. stump is somewhat puckered and depressed, owing to the subsequent removal of a piece of necrosed bone from the tibia.

Private L. S., "G," 1st Louisiana, 43: Opelousas, La., 3d November; amputated, November, 1863; cast made in New York; discharged the service, 6th August, 1864. Artificial limb furnished.

Contributed by Acting Assistant Geo. F. Shrady.

455. A cast of an excellently rounded and well-formed stump, after amputation, by lateral flaps of the soft tissues and,
b. 224. by periosteum flaps, at the junction of the lower thirds of the right leg fifteen months after fracture of the ankle. There is a cicatrix from ulceration following the retention of a knot of ligature at the inner angle, but the general firmness and health of the stump is unimpaired.

Private J. G., "C," 15th West Virginia, 23: Winchester, 24th July, 1864; amputated by Assistant Surgeon G. M. McGill, U. S. Army, Baltimore, 12th October, 1865; transferred, with good stump, to Fort McHenry, 20th February, 1866.

Contributed by the operator.

See 2415, **XVI.** A. B. f. 134.

4319. A cast of the stump of the right leg, sixteen months after circular amputation at the junction of the lower thirds.
b. 225. The cicatrix is somewhat depressed in the centre, but the stump appears useful.

Private S. L., "F," 4th Vermont, 21: Fredericksburg, 13th December, 1862; amputated by Surgeon —— Wilder, New York, 12th January, 1863; discharged the service, 5th April, 1864. Artificial limb furnished, 16th March, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

4301. A cast of the stump of the right leg, four months after reamputation, by the flap method, in the middle third. The
b. 226. stump is beautifully rounded, much of it having healed by the first intention.

Private F. F., "C," 5th New York Heavy Artillery, 17: Snicker's Gap, Va., 18th July; circular amputation lowest third by Surgeon Miller, (Rebel,) 20th August; admitted hospital, Frederick, 12th October; hospital gangrene, 8th—15th November; transferred to New York, 20th December, 1864; reamputated for necrosis of stump after gangrene, by Acting Assistant Surgeon Geo. F. Shrady, 30th March. Artificial limb furnished, 20th July, 1865.

Contributed by the operator.

1025. A cast of the left leg, six months after a flap amputation in the lowest third. The ends of the bone appear rounded
b. 227. and are sufficiently covered. The cicatrix is slightly but not injuriously drawn on the posterior surface.

Private G. M., "E," 97th New York, 30: Hatcher's Run, 7th February; amputated, 15th March; cast made in Albany, in the fall; discharged the service, 13th October, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

4311. A cast of the stump of the left leg, six months after reamputation, by flaps, in the lowest third. The stump is
b. 228. beautifully rounded and firm, and union is said to have occurred by the first intention, but the extremity shows two small lines of cicatrization.

Private L. A. F., "C," 54th Massachusetts, (colored,) 22: foot, Fort Wagner, S. C., 18th July; amputated by Acting Assistant Surgeon W. C. Mulford, 23d July; reamputated for bony protrusion, 20th November, 1863; cast made in New York. Artificial limb furnished, 13th May, 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

4369. A cast of a Syme's stump of the left ankle, six months after primary amputation. The stump is excellent.
b. 229. Private E. R. C., "C," 52d New York, 38: Spottsylvania, 19th May; cast made in New York; discharged the service, 3d November, 1864. Wears an artificial limb. "Can walk with ease and do any kind of work," 19th February, 1866.
Contributed by Brevet Lieutenant Colonel J. J. Milhau, Surgeon, U. S. Army.
See class **XVI.** D.

726. A cast of a well-formed Syme's stump, nine months after amputation. The specimen presents every appearance
b. 230. of being useful.
Private I. T. M., "D," 100th New York: Fort Wagner, S. C., 18th July; amputated, September, 1863; cast made in New York; discharged the service, 4th June, 1864. Artificial limb furnished, 28th April, 1864.
Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.
See class **XVI.** D.

2857. Two plaster casts, being the stumps of both legs, seven months after primary amputation for shell fracture of
b. 231. both feet. The right foot was amputated by Chopart's method, the left ankle by Syme's with lateral flaps. Both stumps are excellent.
Private H. W. C., "H," 100th New York, 30: Drury's Bluff, Va., 13th May; cast made in New York; discharged, 19th December, 1864.
Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.
See class **XVI.** D.

1530. A cast of a well-healed Chopart's stump in the left foot, made about one year after primary amputation. The
b. 232. cicatrix is well up on the anterior face, is smoothly united and firm.
Private T. H., "F," 67th Ohio: Folly Island, S. C., 22d June, 1863; cast made in New York, summer of 1864; discharged the service, 9th August, 1864. Artificial limb furnished, 16th April, 1864.
Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.
See class **XVI.** D.

2298. A plaster cast of a well-formed, serviceable Pirogoff stump of the
b. 233. left ankle. *See figure* 149.
Lieutenant W. C. W., "B," 5th Michigan Cavalry: Five Forks, Va., 1st April; amputated by Surgeon St. Clair, 5th Michigan Cavalry, the same day; admitted hospital, Washington, 16th; attacked with pyæmia, 28th April; proved well, 26th June, 1865.
Contributed by the patient.
See 4628, **XXVI.** A. 2, 75.
See class **XVI.** D.

FIG. 149. Successful Pirogoff stump. *Spec.* 2298.

4218. A cast in wax of the left leg, showing a well-formed and service-
b. 234. able Pirogoff stump, taken one year after the operation. The limb is shortened three-fourths of an inch. With Hudson's apparatus he was able to walk without any irritation of the stump.
Private H. B., "C," 4th U. S. Artillery: foot wounded by shell and amputated on the field, operator unknown, White Oak Swamp, Va., 30th June; admitted hospital, New York, consolidated and in the condition re-presented by the cast, 28th October, 1862; discharged the service, 7th July, 1863.
Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.
See class **XVI.** D.

3732. A cast of the stump of the right leg, three months after amputation
b. 235. by Pirogoff's method. The cicatrix appears firm, but the stump is a little irregular and does not present the appearance of being able to sustain decided weight.
Private O. L., "E," 2d New Hampshire: wounded and amputated by Surgeon Jas. M. Merrow, 2d New Hampshire, before Petersburg, 10th June; cast made in Washington, September, 1864; discharged the service, 16th June, 1865.
Contributed by Acting Assistant Surgeon L. C. Dodge.
See class **XVI.** D.

3197. A cast of a well-united stump, after a Hey's amputation in the left foot.
b. 236. Received, without history, from Frederick.
See class **XVI.** D.

266. A cast of the right foot, after amputation of the first three toes, with the heads of the corresponding metatarsal
b. 237. bones, by an oblique incision. The flap taken from the sole has united firmly. The foot is swollen in the metatarsus and somewhat everted, as though indifferent for locomotion.

Private J. W. Q., "I," 27th Pennsylvania: amputated, for fracture by a city passenger car, by Acting Assistant Surgeon C. B. King, Philadelphia, 15th October, 1863.

Contributed by the operator.

1593. A cast of the right foot, from which the great toe has been amputated at the first phalanx and the others at the
b. 238. metatarsal articulation. The stumps are well rounded and the cicatrices appear firm, but the foot is puffy and swollen, as if by erysipelas. The history speaks of only the loss of the last two toes.

Private W. S., "C," 2d New York Cavalry, 19: Alexandria, La., 6th May; fourth and fifth toes amputated, 8th July; admitted hospital, Albany, 13th December, 1864.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

4700. A plaster cast of the stump of the left leg, twenty-six months after amputation at the junction of the lower thirds.
b. 239. Private C. F. B., "F," 1st Connecticut Cavalry: Petersburg, 20th June; amputated by Surgeon A. F. Sheldon, U. S. Vols., Washington, 3d July, 1864; gangrene followed and several sequestra came away; furnished an artificial limb, April, 1865; healed, July, 1865; cast taken at the Army Medical Museum, by Hospital Steward E. F. Schafhirt, U. S. Army, 24th September, 1866, when the limb had become so atrophied as to necessitate his procuring a new leg.

Contributed by the operator.

See 2765, **XVI.** A. B. f. 23.

c. Illustrating Plastic Operations.

349. A cast of the head and face, deformed as a result of gunshot wound of the chin and centre of the lower jaw five
c. 1. months previously. The lower lip is cleft in the centre and drawn downward and backward by a stellate cicatrix which occupies the place of the chin and of the anterior half of the body of the lower jaw on each side, including the symphysis. The angles of the mouth are drawn downward and inward, making the shape of the oral aperture triangular. The anterior surface of the neck, the cicatrized portion of the chin and the mouth are nearly on the same plane. A duplicate of this specimen in wax, without a number, is mounted by the side of it.

Private J. S., "B," 1st New York Mounted Rifles, 29: Indiantown, N. C., 12th July; cast taken just previous to a plastic operation, New York, 25th December, 1863.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

See 560, **XXV.** A. B. c. 2.

See class **II.** A. B. c.

560. A cast of the lower part of the face, showing the result of a plastic operation performed eight months previously
c. 2. for the relief of the deformity shown in the preceding specimen, 349.

The cicatricial tissue has been removed and the lower lip brought back to its normal position. The scar of the incisions made for this purpose forms a Y inverted. The prominence of the chin is not restored, but there is no depression and it curves forward from the plane of the anterior surface of the neck.

Private J. S., "B," 1st New York Mounted Rifles, 29: Indiantown, N. C., 12th July; operated upon, New York, 26th December, 1863. Cast taken and discharged the service, 1st September, 1864.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

See 349, **XXV.** A. B. c. 1.

See class **II.** A. B. c.

265. A cast of the face, deformed by cicatrices at the right side of the mouth, resulting from wound by a fragment of
c. 3. shell. The right half of the under lip is drawn in beneath and behind the upper, being adherent to the body of the inferior maxilla. The upper lip is shortened by a band of cicatricial tissue which occupies the vermilion border and arches down across the right angle of the mouth, from which point it sends branches downward and outward, one of the latter extending nearly to the right angle of the lower jaw. The mouth could neither be freely opened nor entirely closed and there was constant escape of saliva. The cast represents the condition just before a plastic operation for its relief by Dr. Gurdon Buck.

Private E. H., "C," 6th Vermont, 22: Winchester, 19th September, 1864. Cast taken in New York, 28th February, 1865.

Contributed by Dr. Gurdon Buck.

See 485, **XXV.** A. B. c. 4; 4004, **XXV.** A. B. c. 5; 4005, **XXV.** A. B. c. 6.

485. A cast of the face, showing the result of a plastic operation for the relief of the deformity shown in specimen 265,
c. 4. **XXV.** A. B. c. 3, two months after operation. The right half of the lower lip and the symmetry of the mouth are in a great measure restored. The new portion of the lower lip has been obtained by sliding from the right cheek, the red border having been made from the mucous membrane of the mouth. The greater part of the cicatricial tissue has been

removed, and the scars of three lines of incision are seen; one from the centre of the lower lip downward, nearly to the os hyoides, a second from the angle of the mouth to the right angle of the inferior maxilla, and the third, joining the first, from half an inch below the centre of the lower lip outward, nearly parallel with the second, to a point just above the middle of the right side of the lower jaw, where it turns downward at a right angle crossing the body of the bone.

Private E. H., "C," 6th Vermont, 22: Winchester, 19th September, 1864; operated upon by Dr. Gurdon Buck, New York, 28th February; cast taken, 1st May, 1865.

Contributed by the operator.

See 265, **XXV.** A. B. c. 3; 4004, **XXV.** A. B. c. 5; 4004, **XXV.** A. B. c. 6.

4004. A cast of the lower portion of the face, prior to a second reparative operation. The cast, taken some months
c. 5. afterward, represents substantially the same condition as 485, **XXV.** A. B. c. 4; the mouth tolerably symmetrical as to the lips, but much drawn to the right side.

Private E. H., "C," 6th Vermont, 22: Winchester, 19th September, 1864; operated upon by Dr. Gurdon Buck, New York, 28th February, 1865. Cast taken, 8th January, 1866.

Contributed by the operator.

See 265, **XXV.** A. B. c 3; 485, **XXV.** A. B. c. 4; 4005, **XXV.** A. B. c. 6.

4005. A cast of the lower portion of the face, four months after a second plastic operation for the relief of cicatrices
c. 6. following a severe shell wound of the right lower jaw. By the first operation much of the original cicatricial tissue was removed and the mouth made more symmetrical, although contracted and drawn to the right side. By this operation the mouth has been enlarged to the left so as to be more serviceable and shapely.

Private E. H., "C," 6th Vermont, 22: Winchester, 19th September, 1864; first operation by Dr. Gurdon Buck, New York, 28th February, 1865; second operation by the same Surgeon, 9th January, 1866. Cast made, May, 1866.

Contributed by the operator.

See 265, **XXV.** A. B. c. 3; 485, **XXV.** A. B. c. 4; 4004, **XXV.** A. B. c. 5.

2693. A cast of the face, representing great deformity after shell fracture of the inferior maxilla. The upper half of the
c. 7. right ramus and the left ramus with the angle supporting two molar teeth are all that remain of the lower jaw. The chin has lost its prominence by retraction. A cicatrix extends from the middle of the right zygoma to the angle of the mouth, where it is adherent to the alveolar margin of the upper jaw, from which the teeth have been carried away. By this adhesion the upper lip is drawn up and greatly lengthened to the right. The lower lip, having been detached by two lacerations at the right angle, has dropped below its proper level, is curved backward and outward upon itself and is adherent. The separation between the two angles is a finger's breadth; it exposes the end of the tongue and permits the constant escape of saliva. Over the left chin deep and irregular cicatrices bind down the integument. In the original, but not fairly represented in the specimen, was a free, callous, thick border of skin stretching from the adherent right angle of the mouth to the left angle of the jaw. This supported the tongue and was evidently the lacerated edge from which the lower lip had been torn. All the upper teeth are gone between the last right molar and the left canine. The tongue is limited as to protrusion by adhesions on the right side. Mastication was impracticable, but deglutition was unimpaired. Articulation was very defective.

Private W. S., "I," —— New York Heavy Artillery, 20: Petersburg, 25th March; cicatrized in September; admitted New York City Hospital, 26th October, 1865, where the cast was taken.

Contributed by Dr. Gurdon Buck.

See 2694, **XXV.** A. B. c. 8.

See class **II.** A. B. c.

2694. A cast of the face, representing the result of a plastic operation for the relief of the deformity represented in
c. 8. 2693, **XXV.** A. B. c. 7.

The right cheek has been loosened, the right extremity of each lip has been detached from its cicatricial fastening, the angle has been formed anew, and a complete mouth, though much smaller and somewhat protuberant, has been made. The operation was as follows: a horizontal incision along the cicatricial line, crossing the chin to a point below the left angle of the mouth, detached the lower lip. Its entire thickness with its lining mucous membrane was divided. The new angle was formed by paring away the border, at a point on the margin of the upper lip equidistant with the left angle from the median line. Corresponding treatment was applied to the lower lip and the cut surfaces were brought into accurate apposition. The adherent right extremity of the upper lip was dissected up from its alveolar adhesions and an incision was carried upward along the upper margin of the cicatrix, crossing the cheek as high as the zygoma. The skin and subjacent tissue were freely detached toward the temple. Another incision from the termination of the one detaching the lower lip below the left angle of the mouth was carried across the chin to the right, a finger's breadth below the callous border described in 2693, and was continued over the cheek, below and close to the cicatrix, as far as the zygoma. A third incision, from the origin of the last one, was carried perpendicularly two inches downward upon the neck. The integument in the angle between these and that below the incision across the right cheek was extensively detached from the parts beneath. An upper and lower flap, including the entire right cheek and nearly the whole chin, were thus formed. They were separated by the cicatrix crossing the cheek,

which was covered up by paring their edges and adjusting them over it. The parts were supported by closely placed sutures, four of which were twisted. No adhesive straps were used. The operation was performed under ether. The reconstructed mouth permitted the saliva to be retained, afforded some improvement in articulation and added greatly to the appearance.

Private W. S., "I," —— New York Heavy Artillery, 20: Petersburg, 25th March; operated upon by Dr. Gurdon Buck, New York, 7th November; healed and returned home, 12th December, 1865.

Contributed by the operator.

See 2693, **XXV.** A. B. c. 7.

See class **III.** A. B. c.

d. Other Operations.

3075. A cast of the left thigh and leg. A number of cicatrices attest the removal of a bullet from the head of the tibia
d. 1. and free incisions to relieve cellulitis.

Private P. L., "F," 2d U. S. Infantry, 37: bullet entered head of tibia, not involving the articulation, Chancellorsville, 3d May; removed by Acting Assistant Surgeon Sylvester Teats, New York, September; cellulitis and pyæmic symptoms treated by free incisions, bandages and stimulants, November, 1863; discharged with joint slightly flexed and anchylosed, 4th February, 1865.

Contributed by Assistant Surgeon J. W. S. Gouley, U. S. Army.

4033. Two casts, representing a dislocation of the head of the left femur into the ischiatic notch from disorganization
d. 2. by an abscess and its reduction. The first shows the condition of the hip eight months after the luxation, and the second the condition of the reduced parts.

Lieutenant Colonel W. A. B., 3d Kentucky, 24: twice wounded, Rocky Face Ridge, Ga., 9th May, 1864; one ball entered five inches above the left anterior superior spinous process and did not emerge; the second entered between the seventh and eighth ribs on the right side and emerged two inches nearer the spine and four inches below that point; two attacks of erysipelas, covering the body, and one of dysentery occurred during the summer; a very large abscess was opened in the left iliac region in August; the head of the femur was dislocated while turning in bed, October; three weeks afterward an attempt at reduction under ether failed; an attempt under chloroform failed at Louisville, February, 1865; successfully reduced, by manipulation under chloroform, by Professor Lewis A. Sayre, New York, June, 1865. The limb was supported in its proper position by an instrument devised for the purpose, and by its aid walking was practicable in a few months. See interesting illustrated MS. history.

Contributed by the operator.

B. Not after Gunshot.

A. Injuries. { a. Head and neck. b. Upper extremities. c. Trunk. d. Lower extremities.

a. Head and Neck.

1419. A plaster cast of a varicose aneurism of the right side of the neck of thirty years' standing. This man was
a. 1. wounded, by a small narrow chisel, on the anterior face of the cartilaginous meatus behind the tragus, the direction apparently having been downward, inward and forward. There was little hæmorrhage, but the neck became prodigiously swollen, the tumefaction remaining for six or eight months. The cast represents a (pulsating) tumor three inches in its long (vertical) diameter covered by and attached to an attenuated integument; behind this is another tumor merging imperceptibly into the former, lifting the tragus and lobule, and traceable into a greatly distended external jugular vein, fully an inch and a quarter in width, which, running forward, makes a sharp turn backward in the middle of the neck and, increased in size, dips downward behind the sterno-cleido-mastoid to empty itself into a conspicuously swollen subclavian vein. The temporal veins were much dilated, while the veins of the upper extremity are but little affected. To the finger the first-mentioned tumor gave evidence of possessing a firm capsule on its outer and posterior side. To the ear was given a strong thrill and a loud humming bruit which swelled and subsided with the cardiac systole and diastole. The thrill was met with at the begining but not in the course of the jugular. It is presumed the instrument penetrated the temporo-maxillary vein

and the external carotid at or below its division into internal maxillary and temporal. The internal jugular is probably, and both venæ innominatæ are possibly distended. The cast was made by Prof. Christopher Johnston, M. D., of Baltimore, from whose account the foregoing history has been compiled.

Private G. MacP., 38th Massachusetts: discharged the service, Baltimore, December, 1862. This man, obviously fifty years of age, was accepted as a recruit by a Massachusetts Surgeon.

Contributed by Acting Assistant Surgeon T. F. Murdoch.

See class **XVIII. II.** B. B. a.

b. Upper Extremities.

2957. b. 1. A cast of the left elbow, showing an old ununited fracture of the olecranon process. The depression caused by its retraction by the triceps is very perceptible.

Contributor and history unknown.

3215. b. 2. A cast of the right arm, showing the result of an old fracture and exostosis. Fracture appears to have occurred in the upper third and the lower fragment to have been drawn inward. A considerable and irregular prominence below the axilla points out the new-bone formation. The history is too obscure to be satisfactory.

Private P. T., 15th New York Cavalry.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

d. Lower Extremities.

3241. d. 1. A cast of the left knee, showing a long-existing dislocation outward of the patella. Flexion and extension were nearly as efficient as in the sound limb, and the only inconvenience was that which followed long-continued exertion.

Private C. C. H., "D," 2d Eastern Shore, Maryland, 25: luxated by a fall twenty-one years previously. Cast made in Baltimore.

Contributed by Acting Assistant Surgeon Henry McElderry.

1394. d. 2. A cast of the right knee partially flexed, showing a long-existing dislocation outward of the patella. "During extension the position of the patella was almost natural, but during flexion the dislocation was complete." The only inconvenience was lameness from long-continued motion, as in marching.

Private J. M., "A," 192d Ohio, 19: caused by a fall in childhood. Cast made in Baltimore.

Contributed by Acting Assistant Surgeon B. B. Miles.

B. Operations.

- a. Excisions.
- b. Amputations.
- c. Illustrating plastic operations.
- d. Other operations.

b. Amputations.

1597. b. 1. A plaster cast of the shoulder, showing results of amputation of the left arm just below the shoulder joint for fracture, with laceration of the soft parts, caused by a fall from the cars. Covering for the stump has been obtained from the outer and posterior surface of the arm, making a rectangular flap which is applied to the axilla and side of the chest. A stellate cicatrix with some corrugation occupies the centre of the anterior border of the flap corresponding to the anterior border of the axilla. The shoulder is full and prominent.

Private J. D., "D," 145th New York, 40: fell from the cars between Washington and Philadelphia, 28th October; amputated by Surgeon R. S. Kenderdine, U. S. Vols., Philadelphia, 29th October, 1863. Cast made in New York, spring of 1864.

Contributed by Acting Assistant Surgeon Geo. F. Shrady.

208. b. 2. A cast of the stump of the right leg, amputated, by the circular method, in the upper third for injury by machinery at the age of eleven. The muscles of the stump appear to have grown equally with the rest of the thigh.

J. R., mechanic, employed by Government: entered service with an artificial leg, in the calf of which he was shot.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

450. b. 3. A cast of the stump of the right leg, after amputation in the lowest third, by the method of periosteum flaps, for disease in a tuberculous subject following a sprain of the ankle. The stump is very excellently rounded.

Private C. L., "B," 116th U. S. Colored Troops, 22: sprained ankle, July; date of amputation not given; transferred to Fort McHenry, perfectly well, 20th February, 1866.

Contributed by Assistant Surgeon G. M. McGill, U. S. Army.

918. A cast of the left foot, showing an oblique amputation from within outward through the metatarsals for gangrene
b. 4. following frost-bite. The stump is well healed.

Private W. T., "F," 93d New York, 47: frost-bitten while on furlough, and amputated by a civil practitioner, November, 1864; cast made in Albany; discharged, 25th May, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

See class **XXIII.** B. D.

2417. Two casts of the stumps of both feet, after amputation for frost-bite. The right foot was amputated at the
b. 5. metatarso-phalangeal articulation, and the stump healed smoothly and firmly. In the left foot the amputation was through the phalanges, the fourth one entirely escaping.

Private A. C., "H," 125th New York, 33: admitted hospital, with —— fever, Albany, 23d September, 1864; feet frozen while on furlough and amputated by a civil practitioner; cast made in Albany; discharged the service, 1st January, 1865.

Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

See class **XXIII.** B. D.

4701. A plaster cast of the stump of the left leg, after death two months after amputation in the upper third. The
b. 6. stump was well rounded and healed, but the tissues are fearfully atrophied.

J. T. M., (colored,) 13: right foot and left leg frozen, 22d January; toes of right foot and left leg amputated by Acting Assistant Surgeon A. R. Abbott, 28th January; died from tuberculosis, 28th March, 1866.

Contributed by Dr. S. S. Bond.

See 260, **XXI.** A. B. b. 22.

See class **XXIII.** B. D.

4128. A plaster cast of the stump of the right foot, taken nearly fourteen months after amputation by Chopart's method.
b. 7. The stump is well formed and firm, but it is so sensitive on pressure, for one and a half inches above the cicatrix, that the man desired it might be reamputated above the ankle.

Private C. O. F. C., "G," 1st Oregon: frozen by exposure on a march between Owyhee and Malheur rivers, Idaho, December, 1865; this operation and amputation of left leg performed by Dr. Aman, Auburn, Baker Co., Oregon, 17th January, 1866; transferred East, to receive artificial limbs, and admitted Post Hospital, Washington, 2d February, 1867. Cast made by Hospital Steward E. F. Schafhirt, U. S. Army, 5th April, 1867.

See 4191, **XXV.** B. B. b. 8.

See class **XXIII.** B. D.

4191. A plaster cast of the stump of the left leg, after amputation in the middle third for frost-bite. The operation
b. 8. appears to have been by posterior flaps. The cicatrix failed to heal for more than a year after the operation, from the retention of a ligature, after the removal of which it became firm. The right foot was amputated by Chopart's method.

Private C. O. F. C., "G," 1st Oregon: frozen on a march between Owyhee and Malheur rivers, Idaho, December, 1865; both amputations by Dr. Aman, Auburn, Baker Co., Oregon, 17th January, 1866; transferred East to receive artifical limbs, and admitted Post Hospital, Washington, 2d February, 1867. Cast by Hospital Steward E. T. Schafhirt, U. S. Army, 5th April, 1867.

See 4128, **XXV.** B. B. b. 7.

See class **XXIII.** B. D.

C. Of Disease and Malformation { A. Operated Upon. B. Without Operation.

A. Operated Upon.

1220. Two casts of cartilaginous bodies, removed successfully from the knee joints of a man forty-three years old. The
A. 1. swellings were first observed at the age of seventeen and increased so as to materially interfere with locomotion. Each was removed by being brought to the outside of the knee, and being maintained there, the skin was drawn to one side in order that the wound of the capsule might not be parallel with that of the surface, where it was extracted through a straight incision. The wounds were united by the ethereal solution of gun-cotton, and recovery without the slightest inflam-

mation occurred. The operations occurred ten days apart. The specimens were composed of fibrous and osseous tissue in about equal proportions and weighed, respectively, 283 and 257 grains. They were rather more than two inches broad and one inch wide The operator was Dr. Stedman, of Boston.

Contributed by Prof. J. B. L. Jackson.

See class **XIV.** C.

4252. A cast of the head, showing deformity resulting from loss of the right superior maxillary, the right ala of the nose
A. 2. and a part of the cheek and upper lip, resulting from gangrene probably caused by excessive and improper use of mercury. The margin of the opening consists, below, of the border of the lower lip, which is drawn upward and to the right, its extremity being adherent to the right malar bone; from this point to a point half an inch below the inner canthus of the right eye it is formed by the cicatrized margin of the cheek, and internally by the ridge and left ala of the nose and the left half of the upper lip. The right eye is destroyed and sunken, and the cartilaginous portions of the septum nasi is wanting. The palate bones and velum palati remain in situ. The right nasal fossa is freely opened and the lower turbinate bones are exposed. This deformity was subsequently remedied by a plastic operation. See specimens 4253, 4254, following. The necrosed superior maxilla is shown in specimen 557, **II.** C. A. 2.

Private C. B., "B," "Purnell Legion," Maryland Volunteers, 20: admitted hospital, convalescing from typhoid fever, Frederick, 3d August; discharged the service, 23d December, 1862. Cast taken in Frederick, 26th March, 1863.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

See 557, **II.** C. A. 2; 4253, **XXV.** C. A. 3; 4254, **XXV.** C. A. 4.

See class **XXV.** C. B.

4253. A plaster cast of the lower part of the face, showing the result of a plastic operation performed four weeks
A. 3. previously for the closure of the mouth and partial relief of the deformity shown in the preceding specimen (4252, **XXV.** C. A. 2). The outer fourth of the lower lip has been turned upon itself, forming a part of the upper lip, and the tissue of the right cheek has been glided forward to replace it. The cicatrix of an incision is shown extending from the right corner of the mouth nearly to the angle of the lower jaw. The right corner of the mouth is pouting and forms a semicircle rather than an angle. This cast shows the condition of the man, 23d April, 1863.

Private C. B., "B," "Purnell Legion," Maryland Volunteers, 20: admitted hospital, convalescing from typhoid fever, Frederick, 3d August, 1862. Operation by Dr Gurdon Buck.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

See 557, **II.** C. A. 2; 4252, **XXV.** C. A. 2; 4254, **XXV.** C. A. 4.

4254. A cast showing the final result of plastic operations for the relief of the deformity shown in the two preceding
A. 4. specimens (4252, 4253). The opening in the cheek and the right ala of the nose has been filled by a flap from the forehead. There is a notch in the border of the upper lip, and the right half of the lower lip is still somewhat pouting, the angle of the mouth not being sharply defined. The new part of the nose is slightly hypertrophied and flattened. All the incisions have cicatrized, and in their contraction have drawn the lower part of the face a little to the right. This cast was taken in June, 1864, seven months after the last and thirteen months after the first operation. This man was heard of as in good health April, 1867.

Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

See 557, **II.** C. A. 2; 4252, **XXV.** C. A. 2; 4253, **XXV.** C. A. 3.

484. A plaster cast of an enormous enlargement of the prepuce and scrotum by elephantiasis.
A. 5. I. N., (colored,) 25: born in Georgia; tumor of eight years' growth; weight seventy pounds; circumference five feet; successfully removed, at Colored Hospital, New York, by J. S. Thebaud, M. D.

Obtained by order of the Surgeon General.

To be written out after pamphlet.

B. Without Operation.

2157. A plaster cast of the anterior portion of the neck, deformed by enlargement of the thyroid gland. Both lobes of
B. 1. the gland are hypertrophied, the right more than the left, and the tumor thus formed measures six inches from right to left, three inches from above downward, and is one and a half inches in depth at the most prominent point. The surface is smooth and regular.

Private J. M., "A," 36th Michigan, 41: admitted hospital, with gunshot wound of right wrist, Baltimore, 15th May, 1864. When admitted the tumor had been noticed a little more than a month.

Contributed by Assistant Surgeon D. C. Peters, U. S. Army.

See class **XXIV.** C. B. a.

2526. A cast of the lower two-thirds of the left thigh and upper two-thirds of the leg, exhibiting very extensive varicose
B. 2. veins, especially of the patellar plexus, arising without assignable cause one year before the preparation of the cast. Private W. H. A., "C," 4th Delaware: cast taken while awaiting discharge, Philadelphia, 3d May, 1864.

Contributed by Acting Assistant Surgeons Charles Carter and W. W. Keen, jr.

See class **XVIII. III.** C. B. b.

4355. A cast of both feet, showing malformation. The great toe in each foot is everted and upon it rest the adjoining toes.
B. 3. At the metatarsal articulation of the left great toe is a large bunion (?). The case illustrates the criminality that at one time during the war permitted deformed recruits to be accepted in certain districts.
Private S. H. W., 2d Connecticut Battery: transferred to Invalid Corps, 27th January, 1864.
Contributed by Acting Assistant Surgeon Geo. F. Shrady.

193. An indifferent plaster cast of the left foot, marked as a case of talipes equinus. The instep appears shortened, but
B. 4. the cast does not present any marked deformity.
Contributor and history unknown.

For other illustrations, see 4252, **XXV.** C. A. 2.

XXVI. PHOTOGRAPHS, DRAWINGS AND MAPS.

A. The Army Medical Museum Surgical Series of Photographs.

B. Representing Cases. { A. Photographs. B. Drawings.

C. Representing Specimens. { A. Photographs. B. Drawings.

D. Maps and Plans.

XXVI. PHOTOGRAPHS, DRAWINGS AND MAPS.

A. The Army Medical Museum Series of Photographs.

[These represent surgical cases or specimens in the Museum, and were executed by order of the Surgeon General. They are printed from negatives of ten by twelve inches, are mounted on cards of twelve by fourteen inches, and have a history attached to each case. They are bound in volumes of fifty each.]

MUSEUM SERIES—VOLUME I.

4627. 1. Conoidal ball embedded in cranium. *See* 1108, **I.** A. B. d. 21.
A. 1. 2. Gunshot perforation of right femur. *See* 76, **XIV.** A. B. f. 151.
3. Successful amputation at hip joint. *See* 1148, **XII.** A. A. d. 1.
4. Gunshot fracture of shaft of femur. *See* 1907, **XIII.** A. B. b. 52.
5. Attempts at reparation after gunshot fracture of femur. *See* 1938, **XIII.** A. B. b. 157.
6. Excision of humerus and piece of shell. *See* 1738, **V.** A. A. c. 43.
7. Cylindrical sequestrum of femur. *See* 1853, **XIII.** A. B. g. 76.
8. Sabre cut of occipital. *See* 1672, **I.** B A. d. 4.
9. Fracture of cranium by a shell explosion. *See* 2871, **I.** A. B. a. 3.
10. Contusion of outer and fracture of inner plate of os frontis from gunshot. *See* 2313, **I.** A. A. c. 11.
11. Excised head of humerus. Typical case for excision. *See* 1206, **V.** A. B. c. 25.
12. Round ball in femur. *See* 59, **XIV.** A. B. f. 150.
13. Gunshot fracture upper fourth of femur. Excision of the head of the femur. *See* 71, **XII.** A. A. c. 1.
14. Gunshot fracture upper fourth of femur. Amputation at the hip joint. *See* 710, **XII.** A. B. e. 9.
15. Bayonet fracture of skull. *See* 2179, **I.** B. A. b. 1.
16. Knee joint. Round ball in head of tibia. *See* 1481, **XIV.** A. B. f. 88.
17. Excision of humerus. *See* 2479, **V.** A. B. c. 64.
18. Capt. Stolpe.—Gunshot wound of thoracic and abdominal cavities. *See* SURGICAL DRAWINGS.
19. Right femur with split conoidal ball. *See* 1788, **XIII.** A. B. a. 22.
20. Three lumbar vertebræ and ball. *See* 2762, **III.** A. B. a. 7.
21. Profile view of skull from Bull Run. Fracture by canister shot. Fracture of bones of orbit by contre-coup. *See* 1318, **I.** A. C. a. 9.
22. Section of skull with five trephine holes. *See* 2000, **I.** A. A. b. 11.
23. Skull cap with split conoidal ball. *See* 3543, **I.** A. B. b. 17.
24. Three dorsal vertebræ and ball. *See* 2939, **III.** A. B. b. 19.
25. Vertebræ with knife-blade traversing vertebral canal. *See* 1160, **III.** B. B. b. 3.
26. Depressed gunshot fracture of left parietal. *See* 224, **I.** A. A. c. 22.
27. Exfoliations of parietals after trephining. *See* 3452, **I.** A. A. d. 6; 3451, **I.** A. B. b. 57.
28. A & B. Exfoliation of superior maxillary and plastic operation. *See* 557, **II.** C. A. 2.
29. Amputation at hip joint.—Beverly case. *See* 81, **XII.** A. B. e. 7.
30. Gunshot fracture of ribs. *See* 845, **IV.** A. B. b. 35.
31. Gunshot fracture of middle third of left femur partially consolidated. *See* 1643, **XIII.** A. B. b. 76.
32. Shell wound of the face. *See classes* **II.** A. A. c.; **II.** C. B.
33. Gunshot fracture tibia and fibula.—Port Hudson. *See* 3604, **XV.** A. B. d. 91.
34. Gunshot fracture right parietal. *See* 1257, **I.** A. A. c. 21.
35. Lower half of left femur, with ball, and fracture partly united. *See* 3267, **XIII.** A. B. b. 36.
36. Partly consolidated fracture of upper third of femur. *See* 1161, **XIII.** A. B. b. 181.
37. Excised head and shaft of humerus, with ball. *See* 3289, **V.** A. B. c. 127.
38. United gunshot fracture of right femur below trochanters. *See* 1042, **XIII.** A. B. b. 188.
39. Gunshot fracture of clavicle. Transverse gunshot fracture. *See* 1210, **IV.** A. B. b. 1.
40. Sequestrum from tibia. *See* 1915, **XV.** B. B. g. 1.
41. Recovery after excision of head of left femur.
42. Necrosed humerus. *See* 2749, **VII.** A. B. b. 31.

4627. 43. Tibia and fibula comminuted by an unexploded 12-pdr. shell.—Case of Gen. Sickles. *See* 1335, **XV.** A. a. d. 29.
A. 1. 44. Snyder.—Fracture of skull.—Judiciary Square. *See class* **I.** A. B. b.
45. Schellinger.—Consolidated gunshot fracture right femur.—Judiciary Square. *See class* **XIII.** A. B. b.
46. Durst.—United gunshot fracture right femur. *See class* **XIII.** A. B. b.
47. Burns.—United gunshot fracture of femur. *See class* **XIII.** A. B. b.
48. Delap.—United gunshot fracture of femur. *See class* **XIII.** A. B. b.
49. O'Connor.—United gunshot fracture of femur. *See class* **XIII.** A. B. b.
50. Commissary Clerk.—United gunshot fracture of femur. *See class* **XIII.** A. B. b.

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4628. 51. Excision of head of right humerus.—Sergeant Winser. *See class* **V.** A. B. c.
A. 2. 52. Necrosis and scrofulous caries of right tibia. *See* 3310, **XV.** C. 10.
53. Gunshot fracture of neck and trochanters of right femur. Dr. Mursick's successful excision. *See* 3375, **XII.** A. B. d. 13.
54. Excision of right elbow. Judiciary Square. *See class* **VII.** A. B. d.
55. Sergeant Hanlon.—Consolidated comminuted gunshot fracture left femur. *See class* **XIII.** A. B. e.
56. Excision of head and four inches of shaft of left humerus. *See* 1931, **V.** A. A. c. 40.
57. Perforating gunshot fracture of trochanters of left femur. *See* 565, **XII.** A. B. a. 12.
58. Gunshot wounds of head, arm and abdomen.—Case of Private Bemis. *See classes* **I.** A. B. b.; **VI.** A. B. b.
59. Resection of ulna, carpus and metacarpus. *See* 2786, **XXV.** A. B. b. 16; *class* **IX.** A. B. d.
60. Fracture of the sphenoid bone by a sword. *See* 1612, **I.** B. A. a. 1.
61. Thigh stump, from which a cylindrical sequestrum has been extracted. *See* 252, **XIII.** A. B. g. 57.
62. Gunshot fracture of the head of the left humerus, successfully treated without excision. *See class* **V.** A. B. b.
63. Recovery, without amputation, after gunshot wound of right knee joint. *See class* **XIV.** A. B. b.
64. Recovery, without amputation, after a gunshot wound through the left knee joint. *See class* **XIV.** A. B. b.
65. Recovery, after a penetrating gunshot wound of the abdomen with fracture of the ilium. *See classes* **XI.** A. B. b.; **XX.** A. B. a.
66. Successful excision of the head of the left humerus. *See* 4278, **V.** A. A. c. 2.
67. United gunshot fracture, through the trochanters, of the left femur.—Case of Private Wetzel. *See class* **XIII.** A. B. b.
68. United gunshot fracture of the middle third of the right femur.—Case of Private Green. *See class* **XIII.** A. B. b.
69. United gunshot fracture of the upper third of the right femur.—Case of Private Norwood. *See class* **XIII.** A. B. b.
70. Model of a modification of the ordinary two-horse ambulance.
71. Consolidated gunshot fracture of the shaft of the right femur.—Case of Private Shelter. *See class* **XIII.** A. B. b.
72. United gunshot fracture of the shaft of the left femur.—Case of Sergeant Rider. *See class* **XIII.** A. B. b.
73. United gunshot fracture of the upper third of the right femur.—Case of Corporal Smith. *See class* **XIII.** A. B. b.
74. Aorta, Cava and Branches, showing a ligation of the common iliac artery. *See* 3597, **XVIII. II.** B. B. b. 1.
75. Successful Pirogoff amputation. *See* 2298, **XXV.** A. B. b. 233.
76. Consolidated gunshot fracture of the upper third of the right femur.—Case of Private Crossley. *See class* **XIII.** A. B. b.
77. Consolidated gunshot fracture of the middle third of the right femur.—Case of Private Hutchinson. *See class* **XIV.** A. B. b.
78. Recovery, without amputation, after a gunshot fracture of the left tibia involving the knee joint.—Case of Lieut. Robinson. *See class* **XIV.** A. B. b.
79. Gunshot wound of the face, with great destruction of soft parts.—Case of Private Harvey. *See class* **II.** A. A. b.
80. Gunshot fracture of the lower jaw.—Case of Private Lauersdorf. *See class* **II.** A. B. b.
81. Recovery, after a penetrating gunshot wound of the abdomen.—Case of Lieut. Deichler. *See class* **XX.** A. B. a.
82. Necrosis of left tibia. *See* 4337, **XV.** A. B. g. 37.
83. United gunshot fracture of the upper third of the left femur.—Case of Private G. Bauer. *See class* **XIII.** A. B. b.
84. United gunshot fracture of the shaft of the right femur.—Case of Sergeant W. Brown. *See class* **XIII.** A. B. b.
85. Case of union of a simple fracture of the thigh without shortening or deformity.—Case of Lieut. Starkweather, **XIII.** B. B. c.
86. Gunshot fracture of left scapula. *See* 178, **IV.** A. B. b. 28.
87. Button of bone removed from cranium for fracture by a stone. *See* 1452, **I.** B. C. c. 1.
88. Fragment of shell removed from bladder by Lithotomy. *See* 88, **XX.** A. B. b. 1.
89. United gunshot fracture of upper third of right femur.—Case of Lieutenant Reeder. *See class* **XIII.** A. B. b.
90. Gunshot fracture of right femur, partially united with great deformity.—Case of Private Frederick. *See class* **XII.** A. B. b.
91. Consolidated gunshot fracture of upper third of left femur.—Case of Capt. Lewis. *See class* **XIII.** A. B. b.
92. United gunshot fracture of lower third of right femur. *See* 1354, **XIII.** A. B. b. 82.
93. Gunshot perforation of the ilium.—Case of General Barnum. *See class* **XI.** A. B. c.

4628. 94. Gunshot fracture of the vitreous table, with contusion only of the outer table of the skull. *See* 1568, **I.** A. A. c. 6.
A. 2. 95. Bones of the right knee, exhibiting attempts at repair after a gunshot fracture of the head of the tibia. *See* 3006, **XV.** A. B. d. 57.
96. Right femur. Ununited gunshot fracture of upper third, seven months after the injury. *See* 1325, **XIII.** A. B. b. 141.
97. Perforating gunshot wound of the abdomen. *See class* **XX.** A. B. a. and SURGICAL DRAWINGS.
98. Shell wound of gluteal and lumbar regions. *See* SURGICAL DRAWINGS.
99. Hyperostosis of extremities of right tibia and fibula amputated at place of election. *See* 2778, **XV.** A. B. f. 36.
100. Seven heads of humeri excised for gunshot injury. *See* 1999, **V.** A. B. c. 28; 2592, **V.** A. B. c. 33; 2599, **V.** A. B. c. 35; 2830, **V.** A. B. c. 56; 2363, **V.** A. B. c. 63; 2944, **V.** A. B. c. 105; 1875, **V.** A. B. c. 113.

MUSEUM SERIES—VOLUME III.

4629. 101. Group of officers who had undergone amputation for gunshot injury.
A. 3. 102. Enchondromatous tumor of the neck.
103. Excised head of humerus. *See* 1767, **V.** A. A. c. 27.
104. Excision of the right knee joint. *See* 1956, **XIV.** A. B. d. 4.
105. Perforating wound of the abdomen. Artificial anus. *See class* **XX.** A. B. a. *See* SURGICAL SERIES OF DRAWINGS.
106. Excision of shaft of femur.—Joslyn.
107. Excision of shaft of femur with apparatus.—Joslyn.
108. Rucker ambulance.
109. Hospital steamer Joseph K. Barnes.
110. Recovery after excision of the head of the left femur. *See* 1192, **XII.** A. B. d. 14.
111. United gunshot fracture of the upper third of the right femur.—Private William Rigney, 21st New York Cavalry. *See class* **XIII.** A. B. b.
112. Excision of the entire left humerus.—Private J. E. F. Cleghorn, 1st New Jersey Cavalry. *See* 4629, **XXVI.** A. 3, 148. *See classes* **V.** A. A. c.; **VI.** A. B. c.
113. Amputation at the hip joint.—Private Lewis Francis, 14th New York Militia. *See class* **XII.** A. B. e.
114. United gunshot fracture of the middle third of the left femur.—Private Miller, 116th Pennsylvania. *See class* **XIII.** A. B. b.
115. United gunshot fracture of the upper third of the right femur.—Private L. Felter, 1st Massachusetts. *See class* **XIII.** A. B. b.
116. United gunshot fracture of the middle third of the right femur.—Corporal S. Boice, 5th Michigan. *See class* **XIII.** A. B. b.
117. United gunshot fracture of the upper third of the left femur.—Private Peter Riley, 10th New York Heavy Artillery. *See class* **XIII.** A. B. b.
118. United gunshot fracture of the upper third of the left femur.—Private Charles B. Hodsdon, 7th Maine. *See class* **XIII.** A. B. b.
119. United gunshot fracture of the upper third of the right femur.—Private John Hamilton, 1st Delaware. *See class* **XIII.** A. B. b.
120. Gunshot fracture of left os innominatum.—Sergeant G. E. Corson, 17th U. S. Infantry. *See class* **XI.** A. B. b.
121. Three heads of humeri, excised for gunshot injury. *See* 994, **V.** A. B. c. 19; 10, **V.** A. B. c. 37; 451, **V.** A. B. c. 49.
122. Three heads of humeri, excised for gunshot injury. *See* 2516, **V.** A. A. c. 14; 1715, **V.** A. A. c. 31; 2625, **V.** A. B. c. 110.
123. Three heads of humeri, excised for gunshot injury. *See* 3954, **V.** A. A. c. 8; 2595, **V.** A. B. c. 31; 1180, **V.** A. B. c. 90.
124. Two heads of humeri, excised for gunshot injury. *See* 3405, **V.** A. A. c. 19; 387, **V.** A. B. c. 115.
125. Four heads of humeri, excised for gunshot injury. *See* 1683, **V.** A. B. c. 2; 2002, **V.** A. B. c. 47; 2180, **V.** A. B. c. 48; 3691, **V.** A. B. c. 58.
126. Two heads of humeri, excised for gunshot injury. *See* 2260, **V.** A. A. c. 37; 620, **V.** A. B. c. 102.
127. Two excised elbow joints. *See* 3615, **VII.** A. B. d. 24; 3466, **VII.** A. B. d. 46.
128. United gunshot fracture of the middle third of the right femur.—Private Charles Quail, 4th Vermont. *See class* **XIII.** A. B. b.
129. United gunshot fracture of the upper third of the right femur.—Corporal Erastus Worthen, 2d Vermont Cavalry. *See class* **XIII.** A. B. b.
130. United gunshot fracture of the middle third of the right femur.—Private W. T. Gilbert, 6th Vermont. *See class* **XIII.** A. B. b.
131. United gunshot fracture of the upper third of the right femur.—Sergeant Rufus M. Pray, 3d Vermont *See class* **XIII.** A. B. b.
132. Double amputation of both thighs.—Private Columbus G. Rush, 21st Georgia (Rebel). *See class* **XIV.** A. A. e.
133. The same, with artificial limbs.

4629. 134. Amputation of thigh.—Captain Charles T. Greene, A. A. G. *See class* **XIV.** A. A. e.
A. 3. 135. Successful blepheroplastic operation.—Lieutenant Adam Miller, 2d Massachusetts. *See class* **II.** A. C. a.
136. Exarticulated femur, left side. (Same case as 137.) *See* 4386, **XII.** A. B. e. 8.
137. Successful secondary amputation at the left hip joint. *See* 4386, **XII.** A. B. e. 8.
138. Recovery after penetrating gunshot wound of the abdomen. Adjutant J. E. Mallette, 81st New York. *See class* **XXVII.** B′. B′.
139. United gunshot fracture of the upper third of the right femur.—Private George Rouse, 7th New York.
140. United gunshot fracture of the upper third of the left femur. Private S. T. Pridgen, 18th North Carolina (Rebel).
141. United gunshot fracture of the middle third of the right femur.—Private Charles Last, 125th Illinois.
142. United gunshot fracture of the middle third of the left femur.—Captain R. T. Shillinglaur.
143. Successful intermediate excision of the head and a portion of the shaft of the left humerus for gunshot fracture.—Private Stephen C. Foster, 56th Massachusetts. *See class* **V.** A. A. c.
144. Successful primary excision of the head and three inches of the shaft of the right humerus for gunshot fracture.—Sergeant Jacob P. Yakey, 125th New York. *See class* **V.** A. A. c.
145. Successful primary excision of the head and three inches of the shaft of the right humerus.—Private Adolph Zirsse, 16th Michigan. *See class* **V.** A. A. c.
146. Successful intermediate excision of the head and three inches of the shaft of the right humerus.—Private Samuel T. Tineker, 14th Indiana. *See class* **V.** A. B. c.
147. Successful primary excision of the head and three inches of the shaft of the right humerus.—Sergeant John B. Yost, 4th Pennsylvania Cavalry. *See class* **V.** A. A. c.
148. Excision of the entire left humerus (companion to No. 112).—J. E. F. Cleghorn, 1st New Jersey Cavalry.
149. Successful excision of four inches of the shaft of the right humerus.—Private John Kelly. *See class* **VI.** A. A. c.
150. Successful excision of three inches of the shaft of the left humerus.—Private John Lemmel, 5th Wisconsin.

Museum Series—Volume IV.

4719. 151. United gunshot fracture of both femurs.—Sergeant William Shakspeare. *See class* **XIII.** A. B. b.
A. 4. 152. Excision of the shaft of the left femur.—Henry A. Wiggins, 31st Massachusetts. *See class* **XIII.** A. A. c
153. Consolidated fracture of the left femur—.H. C. Gumbert. *See class* **XIII.** A. B. b.
154. Double amputation, one at the knee joint and one at the thigh.—Charles N. Lapham, 1st Vermont Cavalry. *See classes* **XIV.** A. A. d.; **XIV.** A. A. e.
155. Same, with artificial limbs.—Charles N. Lapham, 1st Vermont Cavalry.
156. Gunshot injury, involving the right hip joint.—Lieutenant Colonel James C. Strong, 38th New York, Brevet Brigadier General U. S. Vols. *See class* **XII.** A. B. a.
157. Consolidated gunshot fracture of the left femur.—Private A. F. Dinsmore, "E," 3d Michigan. *See class* **XIII.** A. B. d.
158. Consolidated gunshot fracture of the right femur.—P. Sweeny, "C," 3d New York. *See class* **XIII.** A. B. b.
159. Amputation at the hip joint. *See* 107, **XIII.** A. B. g. 33; 3734, **XIV.** A. B. f. 197.
160. Amputation at the middle third of the right thigh.—Private Charles Meyer, 5th Connecticut Cavalry. *See class* **XIV.** A. A. e.
161. Consolidated gunshot fracture of the upper third of the left femur.—Private James C. Houston, "G," 25th Ohio. *See class* **XIII.** A. B. b.
162. Osteomyelitis of the right femur. *See* 1007, **XIII.** A. B. f. 79.
163. Round ball lodged in the medullary cavity of the femur. *See* 1076, **XIII.** A. B. d. 72.
164. Osteomyelitis of the right femur. *See* 2890, **XIII.** A. B. f. 56.
165. Osteomyelitis of the left femur. *See* 3518, **XIII.** A. B. f. 65.
166. Penetrating wound of the ascending colon with compound fracture of the right radius.—Brevet Major General Ed. W. Hinks, U. S. Vols.
167—170. Illustrating plastic operations, by Surgeon J. C. McKee, U. S. Army, after severe gunshot injury to the lower jaw.—Private Rowland Ward, 4th New York Heavy Artillery.
171. Two femurs disarticulated. *See* 3098, **XII.** A. B. e. 2; 2288, **XII.** A. B. e. 3.
172. Two femurs disarticulated. *See* 2273, **XII.** A. A. d. 2; 3080, **XII.** A. A. d. 4.
173. Two femurs disarticulated. *See* 1020, **XII.** A. B. e. 1; 4237, **XII.** A. B. e. 6.
174. Two femurs disarticulated. *See* 84, **XII.** A. B. e. 5; 81, **XII.** A. B. e. 7.
175. Two femurs disarticulated. *See* 1148, **XII.** A. A. d. 1; 710, **XII.** A. B. e. 9.
176. Excision of the head of the right humerus.—Major Morrison.
177. Wound of the right hip.—Private Henry Reens, "I," 30th Massachusetts.
178. Unhealed fracture of the right femur, patient erect —Private George Raoss.
179. Unhealed fracture of the right femur, patient lying down.—Private George Raoss.
180. Stump after amputation of the upper part of the right thigh for disease of the femur.
181. Fistula in perineo, from injury.

B. Photographs and Drawings representing Surgical Cases. { A. Photographs. B. Drawings.

A. Photographs.

4640. A volume of seventeen photographs of surgical cases from several U. S. Army General Hospitals, which have
A. 1. been enlarged on negatives of ten by twelve inches at the Army Medical Museum, by order of the Surgeon General.

4641. A volume of seventeen photographs of surgical cases from several U. S. Army General Hospitals, which have
A. 2. been enlarged on negatives of ten by twelve inches at the Army Medical Museum, by order of the Surgeon General.

4632. A volume of sixty-six photographs of surgical cases from Harewood U. S. Army General Hospital, Washington.
A. 3. These are printed from negatives of six by eight inches, and are accompanied by histories.
Contributed by Surgeon R. B. Bontecou, U. S. Vols.

4638. A volume of sixty-five photographs of surgical cases from Harewood U. S. Army General Hospital, Washington.
A. 4. These are printed from negatives of six by eight inches, and are accompanied by histories.
Contributed by Surgeon R. B. Bontecou, U. S. Vols.

4639. A volume of fifty-eight photographs of surgical cases from Harewood U. S. Army General Hospital, Washington.
A. 5. These are printed from negatives of six by eight inches, and are accompanied by histories.
Contributed by Surgeon R. B. Bontecou, U. S. Vols.

4634. A volume of thirty-seven photographs of surgical cases from Lincoln U. S. Army General Hospital, Washington.
A. 6. These are printed from negatives of six by eight inches, and are accompanied by histories.
Contributed by Surgeon J. C. McKee, U. S. Army.

4633. A volume of thirty-eight photographs of surgical cases from Lincoln U. S. Army General Hospital, Washington.
A. 7. These are printed from negatives of six by six inches, and are accompanied by histories.
Contributed by Surgeon J. C. McKee, U. S. Army.

4636. A volume of thirteen photographs of surgical cases from York (Penna.) U. S. Army General Hospital. These
A. 8. are printed from negatives of six by eight inches, and are accompanied by histories.
Contributed by Lieutenant Colonel John M. Cuyler, Medical Inspector, U. S. Army.

4642. A volume of thirty photographs of surgical cases printed from negatives of six by eight inches.
A. 9. Contributed by individual surgeons.

4643. A volume of twenty photographs of surgical cases printed from negatives of six by eight inches.
A. 10. Contributed by individual surgeons.

4646. A volume of three hundred and sixty-four card photographs of surgical cases from Harewood U. S. Army General
A. 11. Hospital, Washington.
Contributed by Surgeon R. B. Bontecou, U. S. Vols.

4637. An album of one hundred card photographs of surgical cases, with memoranda, from Ira Harris U. S. Army
A. 12. General Hospital, Albany, New York.
Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

4635. An album of fifty card photographs of surgical cases, with memoranda, from Ira Harris U. S. Army General
A. 13. Hospital, Albany, New York.
Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

4644. A volume of three hundred card photographs of surgical cases.
A. 14. Contributed by individual surgeons.

4645. A volume of two hundred and fifty card photographs of surgical cases
A. 15. Contributed by individual surgeons.

4656. A large photograph of an enchondroma of the right scapula. It extended from just outside the vertebral column
A. 16. and parallel to it over the right shoulder, involving two-thirds of the clavicle and the upper six inches of the humerus.

It was of almost bony hardness, of very irregular outline and firm attachment at the base. The skin was movable, excepting a small inflamed spot on the outside where there was some tendency to ulceration. The measurements were: circumference of the base forty-five inches; antero-posterior circumference, including the axilla, thirty-nine inches; antero-posterior, transverse and vertical diameters, each fourteen inches. Weight after death, three months later, thirty-one pounds.

—— ——, farmer, 26, Salem, Conn.: general health always good; tumor grew slowly for seven and rapidly for three years; photographs and measurements made, Boston, December, 1863; died from exhaustion following sloughing of the veins, March, 1864. Autopsy showed the tumor pure enchondroma.

For particulars, see BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. LXX, No. 9, p. 169, 31st March, 1864.

Contributed by Professor J. B. S. Jackson.

4655. Seven photographs, mounted together, representing the superior maxilla removed for disease, and the condition of
A. 17. the patient before and after two plastic operations for relief of the deformity.

Private C. B.: operated upon by Dr. Gurdon Buck, of New York.

Contributed by the operator.

For complete history, see 4252–4, **XXV.** C. A. 2, 3, 4.

3444. A large photograph, exhibiting the cicatrix of a sabre wound diagonally across the zygomatic region of the right
A. 18. cheek. This is an interesting specimen of a very rare class.

Major General A. A., U. S. Vols.: the wound was received at the battle of Debreczin, in the Hungarian Revolution, early in 1849. Photographed at the Army Medical Museum, 1866.

4210. Two photographs, representing a colored man before and after the removal of an immense tumor from the left parotid
A. 19. region. The operation was performed by Surgeon E. Bentley, U. S. Vols., in the spring of 1866, and was entirely successful. Photographed at the Army Medical Museum.

B. DRAWINGS.

4649. A portfolio of fifty-six drawings of surgical cases, executed on sheets of fifteen by eighteen inches by Hospital
B. 1. Steward Stauch, U. S. Army, by order of the Surgeon General.

4647. A volume of thirty drawings of surgical cases, on sheets nine by twelve inches, accompanied with histories.
B. 2. Contributed by Surgeon D. L. Young, 21st Ohio.

4648. A volume of twenty-three drawings of surgical cases, from Armory Square U. S. Army General Hospital, Washington,
B. 3. on sheets of six by eight inches.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

4650. A portfolio of thirty-two drawings of surgical cases, executed, by order of the Surgeon General, by Hospital
B. 4. Stewards Baumgras, Schultze and Faber.

4652. A portfolio of fourteen drawings of surgical cases, executed, by order of the Surgeon General, by Hospital Steward
B. 5. Pohlers, U. S. Army.

4653. A portfolio of thirty-six drawings of surgical cases, executed by various artists.
B. 6.

C. Photographs and Drawings representing Specimens. { A. Photographs. B. Drawings.

A. PHOTOGRAPHS.

4630. A volume of forty-nine photographs of surgical specimens from U. S. Army General Hospital, Frederick, Md.
A. 1. These are printed from negatives of six by seven inches.
Contributed by Assistant Surgeon R. F. Weir, U. S. Army.

4631. An album of one hundred card photographs of surgical specimens from the museum of the Albany, New York,
A. 2. Medical College.
Contributed by Assistant Surgeon J. H. Armsby, U. S. Vols.

D. Maps and Plans.

4651. A portfolio of fourteen maps of battle-fields, showing the locations of the hospitals and the lines of battle.
D. 1. Drawn by Hospital Steward Augustus Pohlers, U. S. Army, by order of the Surgeon General.

XXVII. WEAPONS AND PROJECTILES.

A. Weapons.
- **A.** Designed for Offence.
  - a. For indirect injury.
  - b. For direct injury.
- **B.** Means of Defence.

B. Projectiles for Fire-arms.
- **A.** Artillery.
  - a. Types unused.
  - b. Types after use.
  - c. Removed by operation.
- **B.** Small Arms.
  - a. Types unused.
  - b. Types after use.
  - c. After flesh wounds.
  - d. After contact with bone.
- **C.** Other Varieties
  - a. Types unused.
  - b. Types after use.
  - c. Removed by operation.

B′. List of Cases where the course of the projectile or its time of lodgement is remarkable.

B″. List of Cases illustrating the value of the Nelaton Probe.

B′. B′. List of Cases where an unusual foreign body has been introduced.

C. Missiles other than for Firearms.
- **A.** Types and Uninjured Specimens
- **B.** Removed by Operation.

XXVII. WEAPONS AND PROJECTILES.

A. Weapons.

A. Designed. { a. For indirect injury. b. For direct injury.

a. For Indirect Injury.

4617. An Indian bow three and a half feet long, made of hickory. It is nearly straight when relaxed.
a. 1. Contributor and history unknown.

4616. An Indian war-bow of the Yankton or Sissiton, Upper Sioux. It is made of hickory, is three and a half feet
a. 2. long and possesses a double curve. It is stained reddish, is wrapped with red worsted near the middle, and each end is ornamented with a blue ribbon. It is bound near one extremity, where it has been split, with some tendinous material. Made by an Indian prisoner at Fort Ridgely.
Contributed by Acting Assistant Surgeon Alfred Müller.

1833. A section of a Springfield rifle musket, cut so as to display the grooves.
a. 3. Contributed by Brigadier General Geo. D. Ramsay, Chief of Ordnance, U. S. Army.

b. For Direct Injury.

4611. A series of twenty-nine bayonets, of American and foreign manufacture, each with a distinguishing number. This
b. 1. interesting collection was prepared by the kindness of Brigadier General George D. Ramsay, Chief of Ordnance, U. S. Army.

1. Triangular bayonet for French rifled musket, calibre .70, marked 1858.
2. Triangular bayonet for Prussian rifled musket, calibre .69, "Mehlis."
3. Triangular bayonet for French rifled musket, calibre .70. This is one-half inch longer than No. 1.
4. Triangular bayonet for Dresden rifled musket, calibre .58.
5. Triangular bayonet for Prussian rifled musket, calibre .71, "Suhl."
6. Triangular bayonet for Enfield rifled musket, calibre .577.
7. Triangular bayonet for Austrian rifled musket, calibre .54 to .59, made at the Springfield Armory.
8. Triangular bayonet for Austrian rifled musket, calibre .69, made at the Springfield Armory.
9. Triangular bayonet for Springfield rifled musket, calibre .58.
10. Triangular bayonet for Sharp's rifle, calibre .52.
11. Quadrangular bayonet for Austrian rifled musket, calibre .54 to .59.
12. Sword bayonet, with leather scabbard, for short Dresden rifle, calibre .58.
13. Sword bayonet, with leather scabbard, for light French rifle, calibre .58.
14. Sword bayonet, with steel scabbard, for Austrian rifle, calibre .62.
15. Sword bayonet, without scabbard, for Garibaldi rifle, calibre .71.
16. Sword bayonet, with steel scabbard, for Vincennes rifle, calibre .71.
17. Sword bayonet, with leather scabbard, for United States rifle, calibre .58.
18. Sword bayonet, with leather scabbard, for Remington rifle, calibre .54.
19. Sword bayonet, with leather scabbard, for Sharp's rifle, calibre .52.
20. Triangular bayonet for Belgian rifled musket, calibre .70
21. Triangular bayonet for Prussian rifled musket, calibre .71, "Suhl."
22. Quadrangular bayonet for Austrian rifled musket, calibre .69.
23. Triangular bayonet for French rifled musket, calibre .69.
24. Triangular bayonet for English Tower rifled musket, calibre .71.

25. Triangular bayonet for United States smooth-bore flint-lock musket, model of 1822, calibre .69.
26. Triangular bayonet for United States smooth-bore percussion musket, model of 1842, calibre .69.
27. Triangular bayonet for United States smooth-bore percussion musket, model of 1842, calibre .69.
28. Triangular bayonet for French rifled musket, calibre .70.
29. Triangular bayonet for United States musket, old pattern, date and calibre not given.

Contributed by U. S. Ordnance Department.

4613. Lance used in the earlier part of the war by 6th Pennsylvania Cavalry. The steel head is triangular and six inches
b. 2. in length. The wooden shaft of yellow pine, ornamented at the upper extremity with a red pennon, is eight and a half feet long, and the base, tipped with brass, is loaded with lead for several inches.

Contributed by Captain J. G. Benton, Ordnance Department, U. S. Army.

4612. Lance used by Col. Rankin's Michigan regiment. The steel head is ten inches in length, excluding its shaft, and
b. 3. is double-edged. The wooden shaft is eight and a half feet long and ornamented at its upper extremity with a red pennon. The base, tipped with brass, is loaded with lead for several inches.

Contributed by Captain J. G. Benton, Ordnance Department, U. S. Army.

4619. A Sioux war-spear, principally used upon the bodies of the wounded to discover if they are still alive. The iron
b. 4. head is six inches long by two broad at the base, and is bound by iron wire to a handle of light wood four feet long. This handle is ornamented at intervals with plumage of birds, nearly all of which in this specimen is worn off. One of these spears belongs to each band and is held by the medicine-man, being inherited from father to son. It is only removed from the cloth in which it is wrapped during war-time. It is said no new ones are fabricated.

Contributed by Acting Assistant Surgeon Alfred Müller.

4618. A pike, with an iron lance head, twelve inches in length, with a hook at its base four inches long. The shaft is
b. 5. oak, seven feet in length. Used by the Rebels in Fort Wagner, S. C.

Contributed by Acting Assistant Surgeon H. K. Neff.

4658. A Baltimore pike. The iron blade is double-edged, eleven inches long and two inches broad, and is firmly set in
b. 6. an oaken handle two inches in diameter and six feet in length. The specimen is one of seven thousand that were manufactured for the Baltimore rebels, with which to oppose the national troops in April, 1861, but were seized before distribution.

Contributed by Brevet Major D. C. Peters, Assistant Surgeon, U. S. Army.

4659. A duplicate of the preceding (4658, **XXVII.** A. A. b. 6).
b. 7. Contributed by Brevet Major D. C. Peters, Assistant Surgeon, U. S. Army.

4665. A bayonet, broken off three inches from the base.
b. 8. Contributor and history unknown.

For other illustrations, see 1160, **III.** B. B. b. 3.

B. Means of Defence.

4654. An iron breastplate, eighteen inches in its extreme length and nine inches in its extreme breadth, designed to
B. 1. protect the right thorax and abdomen, being a symmetrical half of a defensive cuirass. Its thickness is about one-sixteenth of an inch, and its weight is forty-five ounces. It is perforated below the centre and at its inferior border. as if by rifle balls.

Taken from the body of a Rebel officer, killed at Gettysburg, 3d July, 1863.

B. Projectiles for Firearms.

A. Artillery. { a. Types unused. b. Types after use. c. Removed by operation.

a. Types Unused.

[For this interesting group of specimens, the Museum is indebted to Brigadier General George D. Ramsay, Chief of Ordnance, U. S. Army.]

4609. Friction tubes for firing cannon.
a. 1. From U. S. Ordnance Department.

2736. A series of fourteen cartridges for field guns, from 10 to 24-pounders.
a. 2. From U. S. Ordnance Department.

4581. A cartridge for shot in 6-pounder and 12-pounder gun, each with sabot.
a. 3. From U. S. Ordnance Department.

1132. A series of five cartridges and sabots for shell in howitzers and guns.
a. 4. From U. S. Ordnance Department.

3115. A series of six cartridges, with sabots for spherical case in howitzers and guns.
a. 5. From U. S. Ordnance Department.

3203. A series of six cartridges, with sabots for canister in howitzers and guns.
a. 6. From U. S. Ordnance Department.

4584. A 6-pounder and a 12-pounder solid shot, strapped.
a. 7. From U. S. Ordnance Department.

4595. A 6-pounder shell, unfilled and without plug.
a. 8. From U. S. Ordnance Department.

4583. A series of five shell, strapped, for howitzers and guns.
a. 9. From U. S. Ordnance Department.

4588. A 3-inch shell, Dyer's pattern.
a. 10. From U. S. Ordnance Department.

4589. Two 3-inch shell: one, time fuze; the other, percussion, Hotchkiss' patent.
a. 11. From U. S. Ordnance Department.

4592. Two percussion shell: one, 3-inch; the other, 20-pounder, Schenkl's patent.
a. 12. From U. S. Ordnance Department.

4585. Two 10-pounder Parrott shell: one, time fuze; the other, percussion.
a. 13. From U. S. Ordnance Department.

4586. Two 20-pounder Parrott shell: one, time fuze; the other, percussion.
a. 14. From U. S. Ordnance Department.

4594. A 12-pounder spherical case shot sawn in half, showing the bullets and composition.
a. 15. From U. S. Ordnance Department.

4582. A series of six spherical case shot, strapped for howitzers and guns.
a. 16. From U. S. Ordnance Department.

4590. A 3-inch case shot, Hotchkiss' patent.
a. 17. From U. S. Ordnance Department.

4591. Two case shot: one, 3-inch; the other, 20-pounder, combination fuze, Schenkl's patent.
a. 18. From U. S. Ordnance Department.

4587. Two Parrott case shot: one, 10-pounder percussion; the other, 20-pounder time fuze.
a. 19. From U. S. Ordnance Department.

4598. A series of four canister, filled, for howitzers.
a. 20. From U. S. Ordnance Department.

4597. A series of four canister, filled, for field guns.
a. 21. From U. S. Ordnance Department.

4596. One stand of grape for 24-pounder seige or garrison gun 5".82 bore
a. 22. From U. S. Ordnance Department.

4606. A series of paper fuzes of from ten to thirty seconds.
a. 23. From U. S. Ordnance Department.

4608. Bormann's metallic time fuzes.
a. 24. From U. S. Ordnance Department.

b. Types After Use.

2418. An iron grape shot one inch in diameter, exhumed at Yorktown, Va., 20th January, 1864, and supposed to have
b. 1. been thrown by the allies in the Revolutionary seige.
Contributed by Hospital Steward Geo. E. Fuller, U. S. Army.

519. A cylindrical fragment of a Schenkl shell, three inches in length and two and a half inches in its greatest width,
b. 2. representing the anterior portion after explosion.
Contributor and history unknown.

4458. A fragment of a 20-pounder shell from the field of Antietam. The specimen, which is taken from near the apex,
b. 3. measures three and a half inches in each of its two longer diameters and weighs twenty-three ounces. It illustrates the manner in which such missiles break up.
Contributed by Assistant Surgeon B. Howard, U. S. Army.

4660. A collection of fragments of shell, showing the manner in which such missiles explode.
b. 4. 1. Seven pieces of cast iron, with a thickness of three-fourths of an inch, weighing from eight to twenty-four ounces, apparently from elongated shell.

2. Five fragments from near the apices of heavy cylindrical shell, (from field guns, calibre undetermined,) weighing from twenty-one to fifty-eight and a half ounces.

3. A longitudinal fragment of a 10-pounder shell, weighing thirty-eight and a half ounces.

4. The bases of two elongated shell, as if 30-pounders, Hotchkiss' patent.

5. The bases of two elongated case shot, as if 30-pounders.

6. Four fragments of large field shell, weighing from eleven and a half to forty-five and a half ounces.

Contributed by Major G. W. Sabine, 1st Maine Artillery.

4661. Five fragments of elongated 100-pounder shell. The smallest weighs twenty-six ounces, the largest embraces
b. 5. one-third of the projectile.
Contributed by Major G. W. Sabine, 1st Maine Artillery.

4662. Two unexploded shell thrown by the Rebels: one, 10-pounder; the other, 20-pounder, from rifled guns.
b. 6. Contributor and history unknown.

4663. An unexploded shell, resembling a 30-pounder of the Hotchkiss patent.
b. 7. Contributor and history unknown.

4664. An unexploded elongated 10-pounder shell from a rifled gun.
b. 8. Contributor and history unknown.

4692. The base, and a large portion of the body of an exploded 30-pounder case shot. A number of leaden bullets are
b. 9. yet retained by the composition on the inner surface.
Contributor and history unknown.

c. Removed by Operation.

3294. A conoidal leaden shell two inches in length, one and a half inches in calibre and weighing, unloaded, nine and
c. 1. three-fourths ounces. This missile was cut out of a horse killed, while the rider was reconnoitering with General Kearny, on the first day of the Second Bull Run. No report was heard in the direction whence it came. The contributor subsequently learned, while a prisoner at Chantilly, that such missiles were fired by the Rebels from globe-sighted rifled guns of considerable thickness, to pick off officers at long range. The specimen is very unique.
Contributed by Dr. Gerald D. O'Farrell, late Assistant Surgeon, 63d Pennsylvania.

4516. Three and one-fourth inches of fine iron wire, possibly from case shot, removed in two
c. 2. pieces from the right eye.
Private S. F., "F," 1st Pennsylvania Artillery, 22: Gettysburg, 2d July, 1863. Removed on the field by Regimental Surgeon. Wound healed with loss of vision. *See figure* 150.
Contributed by Assistant Surgeon C. H. Alden, U. S. Army.
See class **II.** A. c. a.

Fig. 150. Wire removed from eye. *Spec.* 4516.

3172. A spherical leaden bullet, quite perfect, as if from spherical case, which was found,
c. 3. after death, lying beneath the sterno-cleido-mastoid and against the left common carotid.
Private J. H. V., "B," 6th New York Heavy Artillery: wound involving ball of left eye, 18th June; admitted hospital, Washington, 30th June; died of pneumonia, 24th July, 1864.
Contributed by Acting Assistant Surgeon H. M. Dean.

809. A spherical leaden ball from case shot, somewhat grooved at one portion with a bony fragment embedded.
c. 4. Private J. B., "C," 8th Ohio: entered one inch below the right angle of the mouth, probably, Chancellorsville, 3d May; cut out one inch in front of the angle of the jaw by Acting Assistant Surgeon B. F. Craig, Washington, 22d May; returned to duty, November, 1863.
Contributed by the operator.

4509. An iron ball, as if from spherical case, which entered at the inner third of the clavicle, fractured that bone and
c. 5. lodged for ten months under the pectoral muscle near the axilla.
Private G. B., "G," 1st New York Artillery: Gettysburg, 2d July, 1863; extracted, Philadelphia, 3d May, 1864.
Contributed by Acting Assistant Surgeon C. B. King.
See **B′**.

4492. A round iron bullet from spherical case, which entered near the anterior superior spinous process of the left ilium
c. 6. and was removed six weeks afterward from near the fourth lumbar vertebra.
Corporal R. P., "H," 5th New York Cavalry: wounded, 13th September; removed, 1st November, 1863.
Contributed by Surgeon D. W. Bliss, U. S. Vols.

4489. A round iron ball from spherical case, removed from the right nates four months after injury. Entered four inches
c. 7. posterior to the left anterior superior spinous process and passed through the rectum.
Private I. M. D. C., "G," 3d Michigan: Chancellorsville, 3d May; large abscess over right ischium opened, Washington, 4th June; specimen removed, 12th September, 1863; discharged the service, 2d July, 1864.
Contributed by Surgeon D. W. Bliss, U. S. Vols.
See class **XX.** A. B. a.

3199. A round iron ball from spherical case, which entered the posterior border of the tibialis anticus above the middle
c. 8. of the left leg, and was removed four inches below.
Private E. M., "C," 12th New Jersey, 24: Gettysburg, 2d July; removed, Baltimore, 13th July, 1863. Recovered.
Contributed by Surgeon C. W. Jones, U. S. Vols.

1498. A badly cast iron ball from spherical case.
c. 9. Private T. H., "B," 36th Ohio: wounded, 19th April; admitted hospital, with leg amputated in the upper third for shell fracture, and with a healed apparently flesh wound of right thigh, Frederick, 12th November; bullet removed by opening abscess, and consolidated fracture at junction of upper thirds with one inch shortening discovered, 5th December, 1864. Recovered.
Contributed by Acting Assistant Surgeon W. S. Adams.
See **B′**.

4456. An iron grape shot, one and one-fourth inches in diameter, weighing two and a half ounces, which entered
c. 10. immediately over the femoral artery, at the battle of Pittsburgh Landing, lodged near the tuber ischii, and was removed by Surgeon J. T. Hodgen, U. S. Vols, 17th April, 1862.
Contributed by the operator.

4538. A grape shot, nearly two inches in diameter, weighing thirteen ounces, which fractured the second and third ribs,
c. 11. and passed under the muscles of the breast into the left axilla between the artery and nerves and the bone.

Unknown: Savage's Station, 29th June, 1862. The missile was removed eight hours afterward. The patient was doing well ten days afterward.

Contributed by Acting Assistant Surgeon P. Middleton.

See **B′**.

4513. A fragment of shell, one-half inch square, which remained almost a year near the spine of the left scapula.
c. 12. Sergeant H. S., "F," 90th Pennsylvania: near Chancellorsville, 30th April, 1863; removed, Philadelphia, 13th April, 1864.

Contributed by Acting Assistant Surgeon Charles Carter.

See **B′**.

4280. A small triangular fragment of shell, which transversely fractured the right ulna at the middle, rent it into
c. 13. longitudinal spiculæ and lodged one and a half inches from the elbow, where its presence was detected by the Nelaton probe. The case is remarkable from the metallic lustre being furnished by cast iron.

Lieutenant E. A. E., 11th U. S. Infantry, 1st June, 1864.

Contributed by Assistant Surgeon J. Sim Smith, U. S. Army.

See **B″**.

2345. A small triangular cast-iron fragment, apparently from the base of a cylindrical shell, which inflicted a crucial
c. 14. wound in the temporal region three-fourths of an inch from the external angle of the right orbit.

Private —— G., "F," 41st New York: John's Island, S. C, 11th February, 1864; extracted on the field and recovered in six weeks with no lesion of vision.

Contributed by Surgeon Samuel Brillantowski, 41st New York.

57. A triangular fragment of shell, one and a half inches in its longest side, weighing one and a half ounces, which
c. 15. entered at the junction of the posterior and middle portions of the deltoid, cutting the muscular fibres but not injuring the joint. It was extracted from the integument in front of the head of the humerus.

First Lieutenant J. S. P., "A," 57th New York: Chancellorsville, 3d May; extracted Chester, Penna.; unable to raise the arm, and discharged for disability, 7th November, 1863.

Contributed by Surgeon T. Hewson Bache, U. S. Vols.

4503. A fragment of the base of a shell, one and three-fourths by one and one-fourth inches, weighing one and one-fourth
c. 16. ounces, removed from the right side eight months after injury. Its presence does not seem to have been suspected for a long time.

Private J. V., (or W.,) "A," 45th New York, 22: conoidal ball entered to the right of the second lumbar vertebra and passed around between the skin and connective tissue, Gettysburg, 1st July; cut out two inches to the right of the umbilicus 12th July, 1863; specimen removed by Surgeon C. W. Jones, U. S. Vols., Baltimore, 2d March, 1863.

Contributed by the operator.

See **B′**.

4459. A fragment of spherical case, showing a section of the orifice for the fuze, and weighing two and two thirds
c. 17. ounces, extracted from the sacrum on the field.

Private C. A. N., "H," 13th Massachusetts: Antietam, 17th September; died, Chambersburg, early in October, 1862.

Contributed by Surgeon E. McDonnell, U. S. Vols.

4460. A fragment of a cylindrical shell, three and a half inches in length, one and one-fourth inches in average width
c. 18. and three-fourths of an inch thick, weighing eight and a half ounces, extracted from the glutæi.

Private G. M. B., —— New York: Second Bull Run, 30th August; removed by Dr. W. I. C. Duhamel, 31st August, 1862. The subject walked two miles with the missile embedded.

Contributed by the operator.

4457. A fragment from the apex of a 20-pounder shell. One border is a section drawn longitudinally through the centre,
c. 19. showing a diameter of more than three and a half inches. The other border is at nearly right angles three inches below the apex. The walls are an inch and one-fourth thick, and the specimen weighs thirty-two and one-half ounces. A soldier, attempting to crack nuts upon the unexploded missile on the field of Antietam, received this fragment. It frightfully lacerated his perineum, made an incision of two inches in the membranous portion of the urethra and upturned the left os ischii. The specimen was found between the ramus ischii and the adductors of the thigh.

Contributed by Surgeon E. McDonnell, U. S. Vols.

See class **XXVII.** B. A. c.

For other illustrations, see 1497, **I.** A. B. b. 13; 1137, **I.** A. B. d. 7; 3739, **III.** A. A. b. 13; 1738, **V.** A. A. c. 43; 3136, **VI.** A. A. b. 9; 2861, **VI.** A. A. b. 10; 3208, **VII.** A. B. f. 29; 3178, **IX.** A. A. e. 3; 4009, **XIII.** A. A. b. 5; 1509, **XIII.** A. A. b. 11; 4179, **XIII.** A. A. d. 6; 4120, **XIII.** A. A. d. 16; 3485, **XIII.** A. B. b. 116; 1076, **XIII.** A. B. d. 72; 2045, **XIV.** A. A. e. 68; 4121, **XIV.** A. A. e. 71; 709, **XIV.** A. B. b. 80; 576, **XIV.** A. B. f. 154; 4028, **XV.** A. A. d. 6: 157, **XVI.** A. B. b. 13.

B. Small Arms.

- a. Types unused.
- b. Types after use.
- c. After flesh wounds.
- d. After contact with bone.

a. Types Unused.

[For the majority of the specimens in this subdivision, the Museum is indebted to the kindness of Brigadier General George D. Ramsay, Chief of Ordnance, U. S. Army.]

4607. Percussion caps for Colt's pistols and primers for Sharp's arms.
a. 1. From U. S. Ordnance Department.

4625. Maynard's primers for small arms.
a. 2. From U. S. Ordnance Department.

4605. Elongated bullets for Colt's pistols; army, cal. .44; navy, cal. .36; pocket, cal. .31.
a. 3. From U. S. Ordnance Department.

4599. Round bullets for smooth-bore musket, cal. .69, and buckshot.
a. 4. From U. S. Ordnance Department.

4600. Cartridges with elongated bullet for smooth-bore musket, cal. .69, Mefford's.
a. 5. From U. S. Ordnance Department.

4604. Elongated bullets for U. S. rifled muskets, cals. .69, .58, .54.
a. 6. From U. S. Ordnance Department.

4602. Elongated bullets, Williams' patent, for rifled piece, cal. .69.
a. 7. From U. S. Ordnance Department.

4603. Cartridges with Shaler's elongated sectional bullet, for rifled piece, cal. .574.
a. 8. From U. S. Ordnance Department.

4601. Cartridges with Gardiner's elongated shell bullet, for rifled musket, cal. .58, and elongated bullet for Sharp's
a. 9. carbine, cal. .52.
From U. S. Ordnance Department.

4620. A series of twenty-four sets of small-arm cartridges, exhibiting the weight of each missile, calibre of the piece for
a. 10. which it is designed and the weight of the charge.
Contributed by Captain J. G. Benton, U. S. Ordnance Department.

4621. A series of eighty bullets and cartridges for small arms, embracing spherical, elongated and explosive balls, with
a. 11. the weight of each missile, the calibre of the piece for which it is designed and the weight of the charge.
From U. S. Ordnance Department.

b. Types After Use.

4610. A conoidal ball, with a copper spade-shaped attach-
b. 1. ment, twice its own length, fastened within the cup and designed to render the flight more accurate. Believed to be of a pattern rejected by the Ordnance Department about 1860. Rumor asserts that this projectile was thrown into the prison camp at Johnson's Island with a message attached. It is slightly compressed at the base. Its true history is unknown. *See figure* 151.

Contributed by Corporal Samuel Willis, 1st V. R. C.

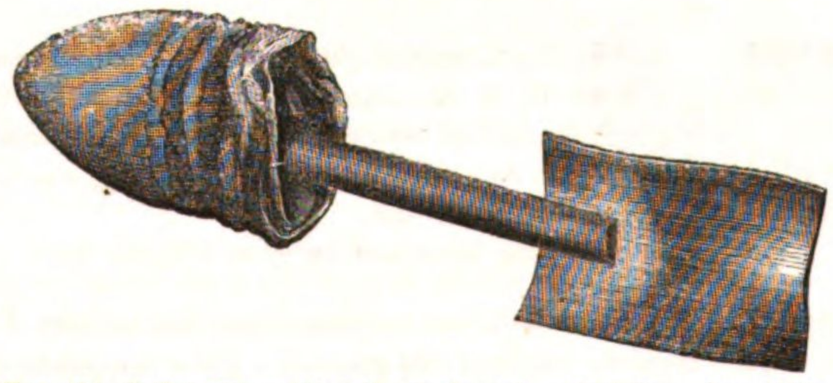

FIG. 151. Bullet with guiding (?) attachment; actual size. *Spec.* 4610.

c. After Flesh Wounds.

FIG. 152. Sma pistol ball which caused death. *Spec.* 4183.

4183. c. 1. A very minute but completely formed conoidal pistol ball, weighing twenty-eight grains, which entered the median line midway between the umbilicus and ensiform cartilage, perforated the intestine and was found lying on the left psoas muscle. Death was caused by hæmorrhage en route to hospital.

A full-sized figure is attached. *See figure* 152.

Private C. B., "L," 8th New York Cavalry.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

4480. c. 2. A small conoidal pistol ball, which passed through the middle third of the right thigh in front of the femur. Private G. S. S., "E," 8th Illinois Cavalry: Barber's Cross Roads, Va., 5th November; admitted hospital, Alexandria, 17th November, 1862.

Contributed by Acting Assistant Surgeon J. B. Bellangee.

3074. c. 3. A conoidal carbine ball, very slightly contused at the apex, extracted from beneath the integument on the inner side of the left knee, Washington, 27th June, 1863. History unknown.

Contributed by Surgeon John A. Lidell, U. S. Vols.

1586. c. 4. A spherical leaden ball, with no disfigurement, except where the forceps appears to have held it, which lodged in the belly of the gastrocnemius.

Sergeant G. W. F., "K," 63d Pennsylvania: Second Fredericksburg, 3d May; extracted by Assistant Surgeon E. F. Bates, U S. Vols., Washington, 14th May, 1863.

Contributed by the operator.

1368. c. 5. A spherical musket ball, with a slight indentation, from the posterior and inner portion of the upper third of the thigh. Ball entered the middle third, and patient claimed to have cut out a conoidal ball on the field which entered the same orifice.

Private J. L., "E," 2d New Jersey, 27: Gaines' Mill, 27th June; removed by Acting Assistant Surgeon E. Hartshorne, Philadelphia, 21st August, 1862; "opacity of cornea from purulent ophthalmia following introduction of pus from wound in the eye;" discharged, 2d January, 1863.

Contributed by the operator.

1598. c. 6. A spherical leaden ball scarcely marked by contact. Extracted one inch below the middle third of the clavicle, having entered one inch below the right coracoid process.

Private H. S., "C," 5th New Jersey: Second Fredericksburg, 3d May; extracted by Assistant Surgeon E. F. Bates, U. S. Vols., Washington, 14th May; returned to duty, 29th October, 1863.

Contributed by Surgeon O. A. Judson, U. S. Vols.

1580. c. 7. A round ball, very slightly disfigured, which entered the left foot and was extracted, six months after the injury, below the external malleolus.

Private J. F., "C," 9th Pennsylvania Reserves: Second Malvern Hill, 31st July, 1862.

Contributed by Surgeon John A. Lidell, U. S. Vols.

1405. c. 8. A round ball, very slightly indented, extracted from the deltoid muscle of the right arm.

Contributed by Surgeon C. F. H. Campbell, U. S. Vols.

630. c. 9. A spherical ball, slightly flattened at one point, which entered and was extracted from the left leg, Chancellorsville, 3d May, 1863.

Contributed by Surgeon Samuel Brillantowski, 41st New York.

3020. c. 10. A round ball, not materially disfigured, which entered between the left trochanter major and the anterior superior spinous process of the ilium at the battle of Pittsburgh Landing, Tennessee, 7th April, and was removed from the perineum, 14th April, 1862.

Contributed by Surgeon J. T. Hodgen, U. S. Vols.

4463. c. 11. A round ball, very slightly contused, which penetrated the root of the lung. Private H. I. R.: entered two inches below the right acromion, passed between the second and third ribs and through the root of the right lung, lodging against the vertebra above the diaphragm, Cedar Mountain, 9th August; died, Alexandria, 17th August, 1862. The right lung was completely collapsed and one hundred and twenty ounces of bloody fluid was found in the pleural sac.

Contributed by Acting Assistant Surgeon J. Robertson.

4407. c. 12. A round ball, not roughened and but slightly misshapen. It entered the outer part of the thigh and was removed from the origin of the gracilis. From the battle of Pittsburgh Landing.

Contributed by Surgeon J. T. Hodgen, U. S. Vols.

4488. A round ball, slightly flattened on one side, removed from near the superior border of the scapula, where it had
c. 13. been embedded for nearly fourteen months, having entered below the anterior convexity of the clavicle.

Private H. M., "E," 9th New York, 20: Roanoke Island, N. C., 8th February, 1862; admitted hospital with typhoid fever, Washington, 8th February, 1863; extracted, 28th April; term of service expired, 4th May, 1863.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

See B′.

4484. A round ball, somewhat flattened on one side, from the shoulder.
c. 14. Contributed by Acting Assistant Surgeon C. W. Horner.

4482. A round ball with a small fragment scraped off and turned back.
c. 15. —— C., "B," 11th Pennsylvania Reserves: Peninsula, 30th June, 1862; removed from fleshy part of the upper third right leg, by Acting Assistant Surgeon George F. French, Alexandria, 9th January, 1863.

Contributed by the operator.

2971. A spherical leaden ball somewhat flattened. It entered at the gluteal fold and was extracted by a counter
c. 16. opening from above the inner condyle of the right femur.

Private S. N., "F," 119th Pennsylvania: Chancellorsville, 3d May; extracted, Washington, 14th May, 1863; discharged, Philadelphia, 30th June, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See B′.

4542. A spherical ball, slightly grooved at its greatest circumference on one side, which entered the trapezius muscle of
c. 17. the right side near the fifth dorsal vertebra, passed upward and forward, passed through the axillary space, followed the long head of the triceps and lodged at the internal condyle of the humerus upon the course of the ulnar nerve, producing numbness of the little and ring fingers.

Private W. A. G., "D," 1st Pennsylvania Cavalry: Cedar Mountain, 9th August; admitted hospital, Alexandria, 13th; extracted by Acting Assistant Surgeon W. Leon Hammond, 21st August, 1862.

Contributed by Surgeon J. E. Summers, U. S Army.

See B′.

4534. A spherical bullet, somewhat grooved in one portion, which entered in front of the inferior angle of the left scapula
c. 18. and passed obliquely downward and backward to within two inches of the spine and two inches below the point of entrance.

Private C. B., "B," 149th Pennsylvania: Gettysburg, 1st July; ball removed on the field; returned to duty, 21st October, 1863.

Contributed by Acting Assistant Surgeon George Hutton.

4467. A round ball, partly flattened on one side, extracted from the side of the last lumbar vertebra.
c. 19. Private T. B., "C," 14th Indiana: entered the lower outer surface of the crest of the ilium, Antietam, 17th September; extracted, Philadelphia, 6th October, 1862.

Contributed by Acting Assistant Surgeon W. Sargent.

4462. A round bullet, somewhat flattened and expanded on one side.
c. 20. Private J. M., "D," 69th Pennsylvania: ball entered below the spine of the right scapula, Antietam, 17th September; fell out, Philadelphia, 3d November, 1862.

Contributed by Acting Assistant Surgeon W. Lehman Wells.

4529. A round ball, triangularly shaped, which produced a superficial wound of one and a half inches in the palmar
c. 21. surface of the right hand near the ball of the thumb. The ball was picked up, having been nearly spent. It probably was a ricochet shot.

Sergeant M. R., "A," 27th Pennsylvania: Gettysburg, 1st July; returned to duty, well, 11th September, 1863.

Contributed by Assistant Surgeon C. H. Alden, U. S. Army.

4553. A round ball, flattened on one side, but chiefly remarkable as an illustration of the manner
c. 22. in which missiles may traverse the body. *See figure* 153.

Private A. J. D., "I," 13th Indiana, 19: ball lodged in left thigh below and in front of the trochanter, Gauley River, 2d November, 1862; experienced some pain and tenderness over the lower portion of the abdomen with difficult micturition for a few days; extracted from the right thigh five inches above the patella, by Surgeon John Neill, U. S. Vols., Philadelphia, 14th April, 1863.

Contributed by the operator.

See B′.

FIG. 153. Flattened round ball which passed subcutaneously from one thigh to the other. *Spec.* 4553.

4526. A piece of lead, battered, as if a portion of a bullet. Entered the right side of the neck, at the border of the
c. 23. trapezius, two inches above the acromio-clavicular articulation, passed superficially and was removed above the middle of the clavicle. Another wound was received at the same time.

Private D. D., "C," 151st Pennsylvania: Gettysburg, 1st July; removed, 3d July; returned to duty well, 16th August, 1863.
Contributed by Acting Assistant Surgeon Charles Carter.
See 4527, **XXVII.** B. B. c. 59.

4522. An elongated ball for a smooth-bore musket, nearly normal in shape. Entered five inches to the left of the spine,
c. 24. one inch above the crest of the ilium, and passed superficially to a point one and a half inches to the right of the spine.

Corporal E B. V., "E," 20th New York State Militia: Gettysburg, 1st July; duty, 11th September, 1863.
Contributed by Assistant Surgeon C. H. Alden, U. S. Army.
See B′.

1443. An elongated ball for a smooth-bore piece, removed from the dorsal muscles.
c. 25. Contributed by Acting Assistant Surgeon C. W. Horner.

3153. An elongated ball for a smooth-bore piece, somewhat blunted at the extremity, which entered the left cheek over
c. 26. the canine fossa and passed backward eight inches from the point of entrance and one and a half from the surface, the location of which was determined by the Nelaton probe and extracted by Surgeon Flandrau, 146th New York, in the field, 20th May, 1864.

Contributed by Assistant Surgeon J. Sim Smith, U. S. Army.
See B″.

671. An elongated ball for a smooth-bore, removed after death from behind the urinary bladder. It is slightly compressed
c. 27. at the base.

Corporal M. M., "G," 8th Ohio, 23: entered to the left of the spine, between the fourth and fifth sacral vertebræ, Gettysburg, 3d July; secondary hæmorrhage from the lateral sacral and small branches of the internal iliac; died in Baltimore, about 15th July, 1863.
Contributed by Surgeon L. Quick, U. S. Vols.

4622. An elongated bullet for a smooth-bore piece. The missile is somewhat battered laterally and slightly notched
c. 28. near the apex. It entered at the cartilage opposite the 11th rib on the left side and was extracted at a corresponding point on the right side without having penetrated the abdominal cavity.

Private T. L., "H," 15th New Jersey; Second Fredericksburg, 3d May; admitted hospital, Washington, 7th; extracted, 11th May; transferred to Small Pox Hospital, 7th June, 1863.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.
See B′.

1095. An elongated ball, for a smooth-bore musket, slightly compressed at the base and moderately bruised near the
c. 29. apex, which was detected by Nelaton's probe and extracted from the thigh twenty months after the wound.

Sergeant U. P., "I," 9th Iowa: Vicksburg, 22d May, 1863; healed in two months and gave no trouble till after a forced march, when an abscess appeared near the great trochanter, October, 1864; the bullet extracted through a curved sinus, 15th January; returned to duty, 22d March, 1865.
Contributed by Assistant Surgeon B. E. Fryer, U. S. Army.
See B′. *See* B″.

4485. A small round ball, as if from a squirrel rifle, extracted from the palm of the hand.
c. 30. Contributed by Acting Assistant Surgeon C. W. Horner.

3293. A small spherical ball, from a pigeon rifle, which perforated the bladder and lodged in the right groin, whence it
c. 31. worked its way out through an abscess.

Private M. J., "F," 25th Wisconsin: Atlanta, 22d July; came away, 11th September; died, 23d September, 1864.
Contributed by Surgeon George F. French, U. S. Vols.
See B″.

2559. An elongated rifle ball, slightly indented at the apex, extracted from the right thigh.
c. 32. Private J. G., "I," 5th Maine Heavy Artillery: Spottsylvania, 19th May; extracted by Surgeon N. R. Mosely. U. S. Vols., Washington, 22d May; returned to duty from Baltimore, 29th September, 1864.
Contributed by the operator.

4521. An elongated rifle ball, slightly compressed at the base.
c. 33. Corporal C. L., "C," 27th Pennsylvania: flesh wound upper part of the right thigh, Gettysburg, 1st July; returned to duty, 11th September, 1863.
Contributed by Acting Assistant Surgeon Charles Carter.

1131. An elongated rifle ball, somewhat compressed at the extremity, extracted, through the orifice of entrance in the
c. 34. left axilla, from beneath the pectoralis major.
Private J. G., "G," 8th Ohio, 28th Gettysburg: removed by Surgeon L. Quick, U. S. Vols., Baltimore.
Contributed by the operator.

4535. An elongated rifle ball, slightly grooved near the apex, which passed through the deltoid and was cut out, four
c. 35. months afterward, beneath the spine of the scapula.
Private W. E. F., 1st Maryland Artillery: Antietam, 17th September, 1862. Removed to Philadelphia.
Contributed by Acting Assistant Surgeon E. B. Van Dyke.
See B′.

4151. An elongated rifle ball, disfigured a very little, with an ordinary military coat button inverted, together with the
c. 36. cloth to which it was sewn. The missile entered two inches below the level of the nipples, passed through the great lobe of the liver and lodged beneath the diaphragm.
Private J. M. M., "C," 1st Maine Cavalry: Brandy Station, 12th October; died of pericarditis and pleurisy, Washington, 20th October, 1863.
Contributed by Assistant Surgeon H. Allen, U. S. Army.
See B′. B′.

4500. A conoidal ball, without alteration of form, which passed through the upper part of the left calf and lodged in the
c. 37. popliteal space of the right.
Private Van R. B., "C," 102d New York, 22: Gettysburg, 3d July; extracted, Baltimore, 17th July, 1863. Returned to duty.
Contributed by Surgeon C. W. Jones, U. S. Vols.

4476. A conoidal ball, normal in shape, which entered the outer side of the right thigh in the middle third and was cut
c. 38. out on the inner side, having passed under the femur.
Private P. M.: Second Bull Run, 30th August, 1862; extracted by Acting Assistant Surgeon J. B. Bellangee, Alexandria.
Contributed by the operator.

176. A conoidal ball, normal in shape, which entered near the right patella and was extracted through the wound from
c. 39. the quadriceps.
Private A. B., "B," 16th New York: Chancellorsville, 2d May; extracted, Washington, 11th May, 1863.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.

4624. A conoidal ball, very slightly compressed at the cupped portion, removed from the thigh.
c. 40. Private G. W. R., "F," 105th Pennsylvania: Second Bull Run, 29th August; admitted hospital, with a flesh wound, through which the probe passed from the anterior edge of the vastus externus, a little below the union of the upper thirds of the femur, to its posterior border, Washington, 2d September; missile extracted from an abscess beneath the inner edge of the sartorius, a little below the apex of Scarpa's triangle, 15th October, 1862. The wound on the inner part of the thigh healed last.
Contributed by Surgeon D. W. Bliss, U. S. Vols.

4006. A heavy conoidal ball, calibre .69, which bears no mark of contusion. It entered the right thyroid foramen, passed
c. 41. through the bladder and emerged through the left greater ischiatic notch cutting the pyriformus. It was cut from the glutæi in the embalmed body of Captain K., 12th Massachusetts.
Contributed by Acting Assistant Surgeon F. Schafhirt.

3146. A heavy conoidal ball, with very trivial derangement of form, which entered the gluteal muscles, passed along
c. 42. the perineum and was extracted from the root of the penis by Acting Assistant Surgeon W. I. C. Duhamel, after Second Bull Run.
Contributed by the operator.
See B′.

4514. A conoidal ball, very slightly scratched at the apex, removed three months after lodgement in the left leg.
c. 43. Private J. G., "K," 69th Pennsylvania: entered posterior surface left leg one inch below the knee, Robertson's Tavern, Va., 26th November, 1863; extracted from the lower posterior third, Philadelphia, 23d February, 1864.
Contributed by Acting Assistant Surgeon Guy G. Hutton.

3097. A heavy conoidal ball, calibre .71, which entered the right hip and was found outside of the ilium, cutting the
c. **44.** gluteal artery. The base is slightly compressed and the apex a little flattened.

From a Rebel, who died after Pittsburgh Landing.

Contributed by Surgeon J. T. Hodgen, U. S. Vols.

1448. A conoidal ball, not disfigured, which entered the anterior portion of the right shoulder and was extracted from
c. **45.** near the inferior angle of the scapula.

Sergeant H. G., "K," 5th United States Cavalry, 28: Beverly Ford, Va., 9th June; extracted ——; admitted hospital, Philadelphia, 23d June; subclavian ligated in its third part, for a traumatic aneurism which burst, 17th August, 1863; died the same day.

Contributed by Acting Assistant Surgeon Isaac Norris, jr.

See 2609, **XVIII. II.** A. B. b. 7.

4532. A conoidal ball, with a slight oblique groove near the apex, which entered, posteriorly, the middle third of the arm,
c. **46.** passed up to the shoulder and was removed, by incision, from the back, over the seventh rib, two inches from the spine.

Private C. B., "D," 11th U. S. Infantry: Gettysburg, 3d July; extracted, Philadelphia, July; returned to duty, 12th September, 1863.

Contributed by Acting Assistant Surgeon D. Burpee.

See **B′**.

4657. A conoidal ball, of unusual slenderness, which entered between the third and fourth ribs, four inches to the right
c. **47.** of the sternum, and was extracted near the inferior angle of the scapula. The two lower thirds on one side are compressed and bear markings, as if of the texture of coarse cloth.

Corporal S. M. E., "K," 10th Pennsylvania: Fredericksburg, 13th December, 1862; extracted, Washington, 19th January, 1863.

Contributed by Surgeon O. A. Judson, U. S. Vols.

4502. A conoidal ball, slightly compressed at the apex and the base, removed, at a depth of one and a half inches, from
c. **48.** the left glutæi muscles. The missile was, probably, nearly spent.

Lieutenant Colonel D. L. S., 2d Delaware: Gettysburg, 2d July; removed, Baltimore, 4th July, 1863.

Contributed by Surgeon C. W. Jones, U. S. Vols.

4501. A conoidal ball, longitudinally flattened on one side.

c. **49.** Musician W. H., "I," 81st Pennsylvania, 17: ball entered outside of thigh and lodged beneath the biceps flexor cruris, Boonsboro', Md., 8th July; removed through wound of entrance, Baltimore, 28th July, 1863. Returned to duty.

Contributed by Surgeon C. W. Jones, U. S. Vols.

4504. A conoidal ball, slightly blunted at the apex, which entered the posterior portion of the left forearm, two inches
c. **50.** above the wrist, passed between the bones of the forearm and was extracted from the anterior surface near the junction of the radius and carpus.

Sergeant S. M. B., 2d Michigan: Gettysburg, 2d July; removed, Baltimore, 4th July, 1863.

Contributed by Surgeon C. W. Jones, U. S. Vols.

4515. A conoidal ball, slightly flattened at the base, cut out after superficial lodgement in the back.

c. **51.** Private J. W., "A," 67th Pennsylvania: Winchester, Va., 15th June, 1863.

Contributed by Acting Assistant Surgeon G. Hutton.

4528. A conoidal ball, slightly compressed at the base, which entered the lower part of the neck to the left of the
c. **52.** vertebræ, and was removed at the inferior angle of the right scapula.

Private B. L., "C," 116th Pennsylvania: Fredericksburg, 13th December, 1862; returned to duty, 1st December, 1863.

Contributed by Assistant Surgeon C. H. Alden, U. S. Army.

1088. A conoidal ball, a little roughened at the apex and compressed at one side of the base, which entered below the
c. **53.** clavicle, penetrated the lung and emerged at the posterior border of the axilla.

Contributed by Surgeon J. H. Brinton, U. S. Vols.

4530. A conoidal ball, obliquely flattened on one side of the body, as if from contact with a stone. Entered the lumbar
c. **54.** region three inches to the left of the spine and lodged in the walls of the chest, six inches distant.

Private D. F., "C," 27th Pennsylvania: Gettysburg, 1st July; removed, 4th July; returned to duty well, 12th August, 1863.

Contributed by Assistant Surgeon C. H. Alden, U. S. Army.

See **B′**.

4491. A conoidal ball, slightly compressed at the base. It entered the left side of the neck at the middle of the sterno-
c. 55. cleido-mastoideus and lodged three-fourths of an inch to the left of the spine of the third dorsal vertebra.

Private G. G. L., "C," 6th Maine, 21: Rappahannock Station, 7th November; extracted, Washington, 10th November, 1863.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

See **B′**.

4520. A conoidal ball, somewhat compressed at the base and flattened on the body over a small surface. The missile
c. 56. apparently ricochetted from a rock.

Corporal J. O., "H," 20th New York State Militia: entered two inches above the left trochanter major and, passing superficially, emerged near the centre of Poupart's ligament and dropped into the boot, Gettysburg, 2d July; returned to duty, 11th September, 1863.

Contributed by Assistant Surgeon C. H. Alden, U. S. Army.

See **B′**.

4574. A heavy conoidal ball, somewhat compressed laterally, obliquely grooved in the body and a little ragged at the
c. 57. base. Entered the outer part of the upper third of the left thigh and removed from the posterior portion above the wound of entrance.

Sergeant J. S. H., "G," 61st New York, 21: White Oak Swamp, 30th June; removed, Philadelphia, 6th August, 1862 transferred North, 22d April, 1863.

Contributed by Acting Assistant Surgeon Ed. Hartshorne.

3028. A conoidal ball, beaten into nearly a triangular pyramid with very sharp edges, extracted from
c. 58. the anterior portion of the lowest third of the left thigh. It probably ricochetted from a stone before wounding. *See figure* 154.

Private E. A., "D," 12th U. S. Infantry: Gettysburg, 2d July; extracted, 3d; transferred to General Hospital, 24th July, 1863.

Contributed by Assistant Surgeon E. de W. Breneman, U. S. Army.

FIG. 154. Battered conoidal ball, wounding by ricochet. *Spec.* 3028.

4527. The greater part of a battered conoidal ball, containing in its folds a number of hairs, which
c. 59. entered one and a half inches behind the right ear and was extracted from the cheek by incision on the buccal surface immediately below Steno's duct. Another wound was received at the same time, not improbably from a fragment of the same bullet split before striking the soldier.

Private D. D., "C," 151st Pennsylvania: Gettysburg, 1st July: extracted, Philadelphia, 17th July; returned to duty, well, 16th August, 1863.

Contributed by Acting Assistant Surgeon Charles Carter.

See 4526, **XXVII.** B. B. c. 23.

See **B′**.

4561. A conoidal bullet, considered to be a specimen of the explosive ball. About the middle of
c. 60. the body the missile has been divided, and the broken fragment is thrown forward, being attached at the apex. *See figure* 155.

The missile was fired from the Rebel General Hill's corps, at the battle of the Wilderness, and exploded in the muscular tissue of the thigh of a Private of the 120th New York. It was extracted by enlarging the wound of entrance.

Contributed by Assistant Surgeon J. T. Calhoun, U. S. Army.

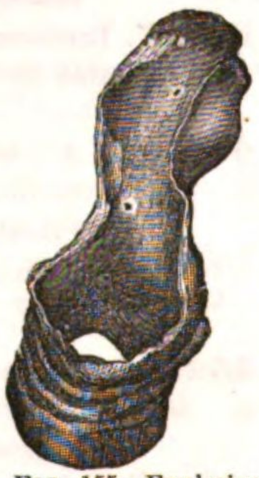

FIG. 155. Explosive ball. *Spec.* 4561.

4539. A piece of iron wire, three-fourths of an inch long, and a fragment of thin metal, as if from
c. 61. a metallic cartridge, reported to be parts of an explosive ball.

Corporal H. R., "G," 10th New York: ball entered the right groin on a level with the symphysis pubis and passed out through the glutæus maximus, Second Bull Run, 30th August; admitted hospital, Alexandria, 3d September; tetanus appeared, 6th; died, 8th September, 1862. The sciatic nerve was lacerated and mortified at the seat of wound, and the neurilemma was inflamed, ecchymosed and softened to the popliteal region.

Contributed by Acting Assistant Surgeon Geo. F. French.

4417. A conoidal ball and eight inches of one-sixteenth-inch iron wire. The ball is
c. 62. laterally compressed, the anterior portion bent upon itself as a hook, and the whole tied into the wire by a loop about an inch from one end. The wire formed the bail of a small tin pail, made from a cup and carried on the right side. The bullet tore the handle from the pail and entered the body about two inches above and in front of the anterior superior spinous process of the ilium, and passed under the abdominal muscles without opening the cavity. The short end of the wire protruded an inch to the left of and below the umbilicus and was removed with the bullet firmly attached, as seen in the specimen. *See figure* 156.

FIG. 156. Bullet and wire, successfully extracted from abdominal parietes. Reduced. *Spec.* 4417.

Private R. H. S., "C," 90th Pennsylvania: Second Bull Run, 30th August; admitted hospital, near Alexandria, 9th September, 1862; returned to duty, January, 1863.
Contributed by Surgeon H. A. Ducachet, U. S. Vols.
See classes **XX.** A. B. b.; **XXVII.** B′. B′.

3400. A fragment of iron ramrod, three-fourths of an inch in length, which entered the anterior surface of the thigh and
c. 63. penetrated to the biceps femoris, detected by the Nelaton probe.
From a soldier of the Ninth Corps, 16th May, 1864.
Contributed by Assistant Surgeon J. Sim Smith, U. S. Army.
See B′. B′. *See* B″.

246. Nearly an entire tompion, removed from below and behind the head of the humerus, into which it was thrown by
c. 64. the accidental discharge of the man's piece. A conoidal ball passed through the soft parts at the same time. The joint was not opened, nor any important blood vessel torn.
—— ——, 18th Connecticut: removed by Surgeon D. W. Stewart, U. S. Vols., Martinsburg, 27th January, 1863. Died from erysipelas.
Contributed by the operator.
See B′. B′.

4552. An elongated smooth-bore ball, much battered at the apex and compressed at the base, extracted, after death, from
c. 65. the lower portion of the pectineus. Entered the left thigh near the centre of the rectus, passed upward, inward and backward, carrying in portions of clothing. It injured neither the bone nor vessels.
Private J. F. N. W., "B," 102d New York: Cedar Mountain, 9th August; walked three miles after being wounded; admitted hospital, with limb swollen and discolored, Alexandria, 12th; died of pyæmia, 15th August, 1862.
Contributed by Surgeon J. E. Summers, U. S. Army.

293. A conoidal ball, with the merest contusion of the rings at one point, which entered one inch externally to the nipple
c. 66. between the sixth and seventh ribs, passed through the left lung, diaphragm, spleen and left kidney, and lodged near the body of the first lumbar vertebra.
Private J. J. P., "B," 5th Wisconsin: Chancellorsville, 3d May; admitted hospital, Washington, 8th; died, 10th May, 1863.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.

2654. A solid conoidal ball, a little compressed at the base, with very minute longitudinal scratchings, which entered the
c. 67. upper part of the left thigh internally, passed over the femoral vessels and was extracted externally.
Second Lieutenant B. H. C., "G," 15th Alabama (Rebel): Gettysburg, 2d July; extracted by Assistant Surgeon E. de W. Breneman, U. S. Army, Philadelphia, 5th; died of pyæmia, 26th July, 1863.
Contributed by the operator.

2326. A conoidal ball, misshapen and disfigured on one side, but preserving its general contour, which was extracted
c. 68. from the popliteal space. It entered the left leg near the knee after ricochetting from the ground.
Private —— B., "B," 134th New York: extracted, four weeks after injury, by Surgeon S. D. Freeman, U. S. Vols., Baltimore.
Contributed by Acting Assistant Surgeon A. T. Pick.

4523. A conoidal ball, distorted and roughened on one side, which entered behind the plantar surface of the metatarsal
c. 69. articulation of the left great toe, and removed on the field. Probably ricochetted.
Sergeant A. S., "G," 27th Pennsylvania: Gettysburg, 1st July; returned to duty, 3d October, 1863.
Contributed by Acting Assistant Surgeon Geo. Hutton.

4507. A conoidal ball, flattened obliquely toward the point and apex on one side, giving it an apparent curvature. It
c. 70. entered behind the great trochanter of the left femur and was cut out at a depth of two inches from the upper border of the left nates.
Private G. F., "F," 50th New York: Fredericksburg, 13th December, 1862; extracted, 3d March, 1863. Recovered.
Contributed by Acting Assistant Surgeon Geo. F. French.

2691. A conoidal ball, somewhat indented at the apex and compressed at the base, extracted two days after a flesh
c. 71. wound of the left hip at Gettysburg.
Private J. R., "D," 10th U. S. Infantry.
Contributed by Assistant Surgeon E. de W. Breneman, U. S. Army.

4519. A portion of a conoidal ball, curiously distorted by being compressed longitudinally and bent on its short axis.
c. 72. It entered two and a half inches to the left of the spine at the level of the fifth cervical vertebra and lodged on the right side two and three-fourths inches from the spine, which was not injured. Possibly ricochetted.
Private B. S., "K," 2d U. S. Infantry: Gettysburg, 2d July; removed, Philadelphia, 29th October, 1863.
Contributed by Acting Assistant Surgeon P. Middleton.

4472. A heavy conoidal ball, obliquely and irregularly flattened in the body. It is reported to have ricochetted and
c. 73. entered the front of the thigh near the femoral artery, and to have been extracted from the glutæus maximus four inches higher up. The bone was not fractured, but a long strip of trowsers was carried in.

Private A. W., "A," 16th Michigan: Gaines' Mill, 27th June; captured; paroled, 25th July; admitted hospital, Philadelphia, 30th July, 1862.

Contributed by Surgeon P. B. Goddard, U. S. Vols.

4693. A conoidal ball, somewhat blunted at the apex and apparently the anterior half of a sectional bullet, extracted
c. 74. from the thigh.

Private E. P. M., "K," 5th Alabama (Rebel): admitted hospital, Washington, 17th July; extracted, 17th September, 1864.

Contributed by Acting Assistant Surgeon S. B. Hoppin.

4695. A slightly disfigured buckshot, extracted from the fleshy part of the upper third of the left leg.
c. 75. Private —— C., "B," 11th Pennsylvania Reserves: Peninsula, 30th June, 1862; extracted by Assistant Surgeon G. F. French, U. S. Vols., Alexandria, 9th January, 1863.

Contributed by the operator.

For other illustrations, see 1855, **XIX.** A. B. a. 18; 2808, **XIX.** A. B. a. 24; 3736, **XIX.** A. B. a. 29; 1231, **XX.** A. A. a. 8; 2884, **XX.** A. B. a. 3; 1926, **XX.** A. B. a. 16; 2013, **XXII.** A. B. a. 8; 1879, **XXII.** A. B. c. 1.

d. After Contact with Bone.

4566. A buckshot, very moderately misshapen, extracted from the knee.
d. 1. Private W. C. F., "E," 11th Pennsylvania: Fredericksburg, 13th December; admitted hospital, Alexandria, 20th December, 1862; extracted by Acting Assistant Surgeon Geo. F. French; died, 3d January, 1863.

Contributed by the operator.

1364. A flattened buckshot, which entered the outer side of the left foot, opposite the fifth, and lodged on the dorsal
d. 2. surface between the second and third metatarsals.

Corporal W. H. B., "F," 28th New York: Chancellorsville, 3d May; extracted by Acting Assistant Surgeon R. E. Price, Washington, 14th May, 1863.

Contributed by the operator.

4471. A somewhat flattened buckshot, from a comminuted fracture of the second, third and fourth metatarsal bones.
d. 3. Private L. D., "A," 35th North Carolina (Rebel): Fredericksburg, 13th December; extracted, 26th December, 1862.

Contributed by Surgeon O. A. Judson, U. S. Vols.

2723. A buckshot, completely flattened, removed with a favorable result. Character of injury not reported.
d. 4. Private M. C., "I," 20th New York State Militia: wounded, 29th August; removed by Acting Assistant Surgeon E. B. Van Dyke, Philadelphia, 7th September, 1863.

Contributed by the operator.

4416. A buckshot, flattened against the humerus without fracture of the bone.
d. 5. Contributed by Surgeon C. W. Jones, U. S. Vols.

4473. A triangular portion of lead, being a buckshot flattened against the frontal bone, which produced
d. 6. a depression of the external and possibly fracture of the internal table. *See figure* 157.

FIG. 157. Buck shot flattened on frontal bone. *Spec.* 4473.

Private J. W., "H," 63d Pennsylvania: Second Bull Run, 29th August; admitted hospital, with a flesh wound over right frontal protuberance and a slight recognizable depression of external table, Philadelphia, 3d September; no foreign substance detected; suffered a convulsion, 9th September; suffered two other convulsions; wound soon healed; two weeks afterward specimen observed and removed; entirely well, 1st November, 1862.

Contributed by Surgeon John Neill, U. S. Vols.

See class **I.** A. A. e.

See **B′**.

1759. A buckshot flattened, as if nearly completely divided by a knife and then beaten with a hammer. It did not
d. 7. cause fracture.

Contributed by Assistant Surgeon W. Moss, U. S. Vols.

4568. Two buckshot in three fragments, each flattened, from wounds of the brain which were
d. 8. survived twelve days. One shot entered the external angle of the left eye, perforated the orbital plate of the frontal bone and lodged in the anterior inferior portion of the anterior lobe, where it was surrounded by a small abscess. A second shot entered over the left zygoma, halfway between the external ear and the outer canthus, denuded the zygoma of a portion of periosteum, glanced upward and backward, penetrated the squamous portion of the temporal bone, passed through the middle and posterior lobes and lodged in the posterior superior portion of the posterior lobe of the left hemisphere. The brain substance was disorganized to the depth of half an inch along the course of the wound. A third shot entered the left antrum and was not removed. *See figure* 158.

FIG. 158. Flattened buckshot which penetrated the cranium. *Spec.* 4568.

Private B. G. S., "F," 9th Kentucky Cavalry: wounded, 12th July; died of meningitis, 24th July, 1863.
Contributed by Surgeon A. M. Wilder, U. S. Vols.
See class **I.** C., B. b.
See **B′**.

3099. A small pistol ball, slightly indented at the base, which entered behind the surgical neck of the right humerus
d. 9. while the arm was raised, passed through the axillary space, entered the cavity of the chest between the fifth and sixth ribs, fractured the fifth rib and divided the fifth costal artery, passed through the middle and lower lobes of the right lung, wounded the inferior vena cava, perforated the centre of the diaphragm and lodged under the skin at the lower border of the left tenth rib near its junction with the ninth in front. The orifice was blackened with powder. There were two other bullet wounds and one contusion.
C. J. (colored): killed, Rolla, Mo., 29th October, 1863.
Contributed by Surgeon H. Culbertson, U. S. Vols.
See **B′**.

4531. A small conoidal ball, as if from a pistol or carbine, obliquely flattened on one side of the body. Entered
d. 10. anteriorly near the middle of the leg. Removed posteriorly, four inches lower down.
Private W. C., "M," 8th New York Cavalry: Beverly Ford, Va., 9th June; extracted, Philadelphia, June, 1863; discharged, 21st January, 1864.
Contributed by Acting Assistant Surgeon Charles Carter.

4297. A much-flattened and battered fragment of a carbine ball, which entered the right scapula from behind, perforated
d. 11. the lung and was extracted from under the integument near the middle third of the clavicle. From a soldier of the 4th New York Cavalry, near Mount Jackson, Va., 13th June, 1862.
Contributed by Surgeon Samuel Brillantowski, 41st New York.

3140. A longitudinal half of a conoidal carbine ball, which entered the glutæi and fractured the left femur at the
d. 12. trochanter major, and was extracted nine and a half months afterward from beneath the vastus externus about six inches below the trochanter. The missile is covered with shallow, close-set, parallel, longitudinal grooves.
Sergeant L. P. W., "B," 22d Virginia (Rebel): Falling Waters, Md., 14th July; admitted hospital, Frederick, 16th July, 1863; missile extracted by Acting Assistant Surgeon W. S. Adams, 23d March; escaped, well, 1st May, 1864.
Contributed by the operator.
See class **XIII.** A. B. b.
See **B′**.

1085. A round ball of small calibre, from the lung. It is slightly roughened at one point, probably from contact with
d. 13. a rib.
Contributed by Acting Assistant Surgeon C. W. Horner.

4294. A spherical ball, slightly notched at one portion by fracture of the middle third of the right humerus.
d. 14. Private D. E., "E," 3d Vermont: Second Fredericksburg, 2d May; removed by Surgeon O. A. Judson, U. S. Vols., Washington, 13th May, 1863.
Contributed by the operator.

2981. A round ball, extracted from the condyle of the femur by the use of the screw, the mark of which instrument is
d. 15. plainly recognizable. It is very slightly roughened.
Contributed by Surgeon J. H. Brinton, U. S. Vols.

4433. A round ball, very moderately contused, extracted from the front of the tibia.
d. 16. Contributed by Acting Assistant Surgeon J. H. Peabody.

2726. A spherical ball, with a concave impression over a small segment caused by contact with the shaft of a large bone.
d. 17. The history illustrates the importance of removing foreign bodies whenever practicable.
Private J. C., "I," 1st Ohio Artillery, 29: anterior middle of the lowest third of the right thigh, Second Bull Run, 29th August; symptoms of pyæmia occurred, and ball extracted from against the femur, beneath the semi-membranosus, at the junction of the lower thirds, Washington, 29th November, 1862. Recovered rapidly.
Contributed by Acting Assistant Surgeon Samuel T. Brown.

295. A spherical leaden ball, somewhat flattened at two places with a bony fragment embedded. Entered one and a
d. 18. half inches behind the left acromion, penetrated the left scapula, passed across the back beneath the right scapula and down the right arm to near the middle of the external aspect of the deltoid.

Private L. M., "A," 3d (Indiana ?) Maryland Cavalry: Antietam, 17th September, 1862; extracted by Assistant Surgeon E. F. Bates, U. S. Vols., Washington, 15th February, 1863.

Contributed by the operator.

See **B′**.

4408. A round ball, roughened over a small section with bony particles impacted, which entered at the inner angle of
d. 19. the right eye and lodged at the angle of the left inferior maxilla, whence it was extracted.

Private T. T., "K," 12th Ohio: Second Bull Run, 27th August, 1862. Recovered with loss of right eye.

Contributed by Surgeon J. E. Summers, U. S. Army.

1288. A spherical leaden bullet, with a deep groove containing a fragment of the temporal bone embedded in it.
d. 20. First Sergeant G. C., "A," 11th New Jersey, 26: penetrated the right temporal bone and lodged behind the sella turcica, Chancellorsville, 3d May; admitted hospital, paralysed on the left side, 7th; died, 11th May, 1863.

Contributed by Acting Assistant Surgeon J. E. Smith.

See class **I.** A. B. d.

3295. A spherical ball, oblately flattened, removed from the middle third of the right leg.
d. 21. Corporal F. U., "E," 120th New York: Chancellorsville, 3d May; removed by Surgeon O. A. Judson, U. S. Vols., 13th May, 1863.

Contributed by the operator.

2432. An elongated ball, somewhat grooved at the apex, extracted ten weeks after injury. The missile entered at the
d. 22. surgical neck of the humerus, while the arm was extended in the act of firing, and could not be traced.

Private T. M., "A," 109th Pennsylvania: shoulder joint opened, Cedar Mountain, 9th August; head and upper portion of humerus excised by Surgeon D. W. Bliss, U. S. Vols., Washington, 19th August; bullet extracted from an inch and a half below the spine of the scapula, October, 1862. Recovered.

Contributed by the operator.

See 190, **V.** A. B. c. 22.

See **B′**.

4405. A round ball, roughened on one side, which entered at the external and lodged at the internal malleolus, Pittsburgh
d. 23. Landing, 7th April; amputated, 19th April, 1862.

Contributed by Surgeon J. T. Hodgen, U. S. Vols.

4395. A round ball, which entered in front below the head of the tibia and was extracted from the calf, Fort Donelson,
d. 24. 23d April, 1862. A shallow groove, half an inch wide, exists on one side, adjoining which the missile is flattened to a similar extent.

Contributed by Surgeon J. T. Hodgen, U. S. Vols.

978. A round ball, semi-spherically flattened by fracturing the forearm. On the rounded border of the line of contact is
d. 25. an impress, as if of the texture of the cloth made while heated.

Contributed by Surgeon A. Hard, 8th Illinois Cavalry.

4570. A spherical bullet, somewhat flattened on each and roughened upon one side. Entered between the third dorsal
d. 26. vertebra and the inner border of the scapula, struck the superior angle of the scapula, passed upward around the inner aspect of the trapezius and finally lodged behind the posterior belly of the omo-hyoid, lying upon the brachial plexus.

Private J. B., "H," 2d Massachusetts: Cedar Mountain, 9th August; admitted hospital, Alexandria, 13th: extracted by Acting Assistant Surgeon W. Leon Hammond, 24th; transferred to another hospital, 30th August, 1862.

Contributed by Surgeon J. E. Summers, U. S. Army.

See **B′**.

4517. A round ball, somewhat flattened and decidedly roughened at one border. The missile entered at the bridge of
d. 27. the nose and lodged, superficially, half an inch anterior to the lobe of the left ear.

Private G. H., 3d Company, 1st Battalion, Invalid Corps: accidentally, near Philadelphia, autumn of 1863.

Contributed by Acting Assistant Surgeon Charles Carter.

3576. A spherical ball, with nearly one-fourth cleanly cut and turned over, as if by contact with a bony spine.
d. 28. Possibly the case of Private J. L., 16th Connecticut: left knee, Antietam, 17th September; thigh amputated, 7th October; died from secondary hæmorrhage, 16th October, 1862.

Contributed by Surgeon E. McDonnell, U. S. Vols.

4432. A round ball, deeply grooved and roughened on one side by the fracture of a lumbar vertebra.
d. 29. Contributed by Assistant Surgeon G. L. Porter, U. S. Army.

4419. A round ball, flattened on one side and roughened over the balance of the surface, which entered two inches
d. 30. below the superior spinous process of the ilium, two lines toward the median line, Second Bull Run, 30th August; extracted from behind the neck of the femur, Washington, 13th October, 1862. The ball shows the application of the screw. The soldier walked a mile after being shot.
Contributed by Surgeon Charles Page, U. S. Army.

4565. A spherical ball, irregularly flattened on one side, in which is embedded a fragment of an iron nail, as though
d. 31. from the heel of the shoe.
Private L. B., "K," 5th Vermont: Savage Station, 29th June; a prisoner, without treatment, until 22d July; admitted hospital, Philadelphia, 26th July; extracted from against the bone near the centre of the plantar surface of the foot, by Acting Assistant Surgeon W. F. Atlee, 25th August; discharged, 27th November, 1862.
Contributed by the operator.
See **B′. B′.**

2813. A spherical bullet, flattened and halfway split, with ragged edges, removed from the right and near the fifth
d. 32. lumbar vertebra, about four inches from the surface.
Private W. A. D., "H," 11th New Jersey: Chancellorsville, 3d May: removed, Washington, 12th; did well until 29th; died, delirious, with no evidence of paralysis except torpor of the bladder, 30th May, 1863. Autopsy objected to.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.

4435. A round ball, grooved in one side to the depth of a quarter of an inch, with a fragment
d. 33. bent outwardly to the same extent, extracted from the superior maxilla of a Rebel. It had penetrated the brain through the opposite temple, passed behind the eye, under the nose and through the maxilla. *See figure* 159.
Antietam, 17th September; extracted, Frederick, 22d; died, from meningitis suddenly supervening, 23d September, 1862.
Contributed by Acting Assistant Surgeon J. H. Bartholf.
See class **I.** A. c. c.
See **B′.**

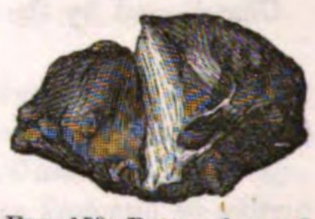

FIG. 159. Battered round ball, which passed through the brain into the face. *Spec.* 4435.

3147. The greater part of a round ball, which the portion removed has left slightly concave at the line of section.
d. 34. Entered the right calf, Pittsburgh Landing, 7th April, and removed from the popliteal space by enlarging the original opening, 21st April, 1862.
Contributed by Surgeon J. T. Hodgen, U. S. Vols.

4564. A spherical ball, somewhat flattened and smoothly split near the centre, with the smaller portion bent down at
d. 35. right angles.
Private A. B., "H," 100th New York: just above the condyle of the left humerus, Fair Oaks, 31st May; a prisoner until 22d July; admitted hospital, with typhoid fever, Philadelphia, 26th July; extracted, 23d August; returned to duty, 2d December, 1862.
Contributed by Acting Assistant Surgeon W. F. Atlee.

1776. The half of a spherical leaden ball, with the flattened side slightly concave, as if by contact with the shaft of a
d. 36. bone.
Private A. J. D., "I," 13th Indiana, 19: probably Fredericksburg, 13th December, 1862; extracted from the thigh by Surgeon John Neill, U. S. Vols., 14th April, 1863.
Contributed by the operator.

2697. A spherical leaden ball, split nearly in two and flattened into one plane on the cut surface.
d. 37. Private H. M. M., "D," 10th Maine: left hip, Cedar Mountain, 9th August, 1862; cut out near the trochanter, Philadelphia, 13th March; returned to duty, 29th June, 1863.
Received from Philadelphia.

4424. A round ball, flattened to the diameter of an inch. *See figure* 160.
d. 38. Private B. K., 2d Wisconsin, 24: ball entered the left shoulder in the middle of a line drawn from the acromion to the anterior angle of the axilla and lodged in the humerus, whence it could not be extracted by the forceps, South Mountain, 14th September. An incision three inches long, continuous with the wound and parallel with the fibres of the deltoid, showed the bone not fractured, but that the ball had punched a hole in the anterior wall and flattened in the medullary cavity against the posterior wall. The insertion of the capsular ligament was involved, but the joint was not opened. The opening in the bone was enlarged, and the ball extracted, Frederick, 21st September; returned to duty with free motion of arm, partly scapular, 1st November, 1862.
Contributed by Acting Assistant Surgeon W. W. Keen, jr.
See **B′.**

FIG. 160. Flattened ball extracted from medullary canal of humerus. *Spec.* 4424.

4479. A round ball, irregularly and roughly battered, which entered two inches above the right nipple and emerged three
d. 39. inches below the inferior angle of the right scapula, comminuting the rib at the point of exit.

Private S. McC., "D," 3d Pennsylvania Reserves: Second Bull Run, 28th August; extracted by Acting Assistant Surgeon G. F. French, Alexandria, 15th September; apparently well, with diminished respiration in lower right lobe, 11th November, 1862.

Contributed by the operator.

See B′.

4477. A part of a round ball, which shattered the outer condyle and lodged beneath the patella, flattened, with smooth
d. 40. curved edges.

Private S. P. K., "I," 7th Ohio: Cedar Mountain, 9th August, 1862; thigh amputated, Alexandria. Recovered.

Contributed by Acting Assistant Surgeon J. B. Bellangee.

4397. A round ball, from the palm of the hand, flattened on one surface.
d. 41. Contributed by Surgeon L. Quick, U. S. Vols.

4468. A round ball, flattened on one side, and fragments of clothing removed from the wound. The condyle of the
d. 42. humerus was fractured. A large abscess in the deep fascia resulted.

Contributed by Assistant Surgeon A. W. Gill, U. S. Vols.

4182. A flattened distorted round ball, perforated by a fragment of bone from the forearm, which it embraces necrosed.
d. 43. Contributed by Assistant Surgeon W. Webster, U. S. Army.

4571. A wafer-like fragment of a spherical ball, extracted after flattening against the left humerus.
d. 44. Private J. S., "B," 2d Massachusetts: Cedar Mountain, 9th August; admitted hospital, Alexandria, 13th; extracted by Acting Assistant Surgeon W. Leon Hammond, 25th; transferred to another hospital, 30th August, 1862.

Contributed by Surgeon J. E. Summers, U. S. Army.

4536. A spherical bullet, very much battered and jagged, extracted from between the ribs and scapula below the spine.
d. 45. Private G. K., "I," 99th Pennsylvania: Chancellorsville, 3d May; extracted, Philadelphia, 15th July, 1863; transferred to another hospital, 17th March, 1864.

Contributed by Acting Assistant Surgeon P. Middleton.

979. A round ball, contorted into an irregular and jagged triangular pyramid in fracturing a femur.
d. 46. Contributed by Surgeon A. Hard, 8th Illinois Cavalry.

4554. A very greatly battered leaden bullet, which, probably, was originally spherical. It is now in the form of a
d. 47. flattened hemisphere, with a thickened base of one and a quarter inches and a radius of three-fourths of an inch.

Private P. R., "L," 4th U. S. Artillery: left malar bone shattered, Fredericksburg, 13th December, 1862; extracted from the superior maxillary, by Acting Assistant Surgeon Theo. Artaud, Baltimore, 11th January, 1863. Healed with some depression.

Contributed by the operator.

3229. An elongated smooth-bore ball, slightly blunted at the apex and compressed at the base after entering in front of
d. 48. the head of the right humerus, Pittsburgh Landing, 6th April; removed from two inches above the clavicle, 20th April, 1862.

Contributed by Surgeon J. T. Hodgen, U. S. Vols.

977. An elongated ball, from a smooth-bore musket, roughened longitudinally over a narrow longitudinal track.
d. 49. Contributed by Surgeon A. Hard, 8th Illinois Cavalry.

4413. An elongated ball, from a smooth-bore piece, somewhat flattened at the apex and slightly roughened, retaining a
d. 50. portion of a wooden plug in the cup, which entered near the lower angle of the left scapula, Pittsburgh Landing, 6th April, and was removed from the left side of the neck, 20th April, 1862.

Contributed by Surgeon J. T. Hodgen, U. S. Vols.

4441. An elongated smooth-bore bullet, flattened obliquely at the base, which probably was the extremity that struck.
d. 51. Private H. W., "H," 20th Illinois: ball passed through right forearm while flexed and entered lowest third of arm, Atlanta, 21st July; extracted by Surgeon Geo. F. French, U. S. Vols., 6th September, 1864.

Contributed by the operator.

3121. An elongated smooth-bore ball, with the anterior portion obliquely flattened, the extremity curled over and the
d. 52. cup somewhat expanded.

Private W. H. K., "E," 63d New York: Cold Harbor, 3d June; extracted from the upper third of the left thigh by Assistant Surgeon H. Allen, U. S. Army, Washington, 13th June, 1864.

Contributed by the operator.

4412. An elongated smooth-bore ball, compressed at the base and smoothly flattened upon itself at the apex, which
d. 53. fractured a femur at the battle of Pittsburgh Landing.
Contributed by Surgeon J. T. Hodgen, U. S. Vols.

378. An elongated bullet, from a smooth-bore musket, with an irregular longitudinal groove down one side and a short
d. 54. transverse notch at the apex, which entered half an inch to the right of the sixth dorsal vertebra, passed up beneath the scapula and transversely fractured the right clavicle just within the coraco-clavicular ligament, near which it lodged.

Private C. B., "I," 28th New Jersey: Fredericksburg, 12th December, 1862; cut out by Surgeon John Neill, U. S. Vols., Philadelphia, 22d February, 1863. Recovered, with no serious symptoms at any time.

Contributed by the operator.

See **B′**.

4421. A heavy elongated smooth-bore bullet, somewhat compressed laterally and at the base, near which it is roughened.
d. 55. The marks of the forceps are to be seen near the apex.

Sergeant L. R., "H," 26th Pennsylvania: ball entered middle of left scapula one inch below the spine, Gettysburg, 3d July; searched for unavailingly; discovered by a Nelaton probe and extracted, 27th September, 1863. Returned to duty.

Contributed by Acting Assistant Surgeon W. W. Keen, jr.

See **B″**.

4475. An elongated ball, obliquely flattened with some expansion near the apex, which entered the side
d. 56. of the left foot and buried itself deeply in the sole. The distortion appears to have been the result of rotation around its long axis at the instant of impact. The bullet was extracted by the use of sponge tents, without incision, and recovery followed. *See figure* 161.

Private A. C., "F," 7th Virginia.

Contributor unknown.

FIG. 161. Elongated ball obliquely distorted. *Spec.* 4475.

2932. A heavy elongated smooth-bore ball, compressed at the base, so that the wooden plug is enclosed
d. 57. and battered, blunted and roughened at the anterior extremity, which entered three-fourths of an inch above the trochanter major and lodged beneath the integument and superficial fascia one and a half inches below Poupart's ligament. The thigh was abducted and shortened three-fourths of an inch

Private A. E. F., "B," 6th Maine, 25: Rappahannock Station, 7th November; admitted hospital, Washington, 9th; ball extracted, 11th; died, 25th November, 1863.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

4486. An elongated smooth-bore ball, much roughened on one side. The incrustation on the missile exhibits, under the
d. 58. microscope, spongy bone.

Sergeant J. D. H., "C," 1st New York: entered two and a half inches to the right of the second lumbar vertebra, Second Bull Run, 30th August; extracted three inches from wound of entrance, by Acting Assistant Surgeon G. E. Fuller, Alexandria, 17th November; discharged, 29th December, 1862.

Contributed by the operator.

See class **III.** A. B. a.

4431. An elongated smooth-bore ball, with the apex driven back upon itself and roughened with expansion, and the
d. 59. base compressed, after fracture of a lumbar vertebra.
Contributed by Acting Assistant Surgeon W. W. Keen, jr.

2348. An elongated ball, slightly disfigured at the apex, with three minute fragments of cancellated bone from the
d. 60. knee joint.
Contributed by Dr. David Prince, of Jacksonville, Illinois.

4404. An elongated smooth-bore ball, much compressed on the anterior half, with fragments of bone embedded in it and
d. 61. a portion of the cup driven backward over a wooden plug that is inserted in the base. Entered calf of the leg and lodged at the base of the metatarsal bone of the fourth toe, Pittsburgh Landing, 7th April; amputated, 19th April, 1862.

Contributed by Snrgeon J. T. Hodgen, U. S. Vols.

4426. An elongated smooth-bore ball, beaten back upon itself with some regularity by fracture of the patella, a fragment
d. 62. of which is attached.
Contributed by Acting Assistant Surgeon W. W. Keen, jr.

1579. An elongated smooth-bore ball, notched at the apex and compressed at the base, which entered two inches above
d. 63. the left nipple, passed through the thorax and was extracted near the inferior angle of the left scapula.

Private J. H., "I," 145th Pennsylvania, 35: Gettysburg, 2d July; removed by Surgeon L. Quick, U. S. Vols., Baltimore, 22d July, 1863.

Contributed by the operator.

3170. An elongated smooth-bore ball, with the cupped portion compressed, folded upon itself and flared as horns at the
d. 64. angles. It shattered the head of the tibia, apparently striking base first, Pittsburgh Landing, 7th April; died, 10th May, 1862.

Contributed by Surgeon J. T. Hodgen, U. S. Vols.

1676. A conoidal ball, compressed at the base, irregularly notched and encrusted with blood. In parts are plainly visible
d. 65. the marks of the forceps.

Private I. W., "C," 11th Pennsylvania, 31: grazed the upper third of the femur, probably Wilderness, 6th May; extracted, Washington, 18th May, 1864.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

2858. An elongated rifle ball, somewhat scratched at the apex, which entered one and a half inches to the left of the
d. 66. spine of the fourth lumbar vertebra and lodged one and a fourth inches above the crest of the right ilium.

Private A. A., "A," 119th Pennsylvania, 22: Rappahannock Station, 7th November; extracted, Washington, 10th; died, 15th November, 1863.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

282. An elongated rifle ball, somewhat blunted and grooved at the apex and in the body, which entered the left hip
d. 67. and involved the sacrum.

Private L. B., "G," 7th Maryland: Haymarket, Va., 19th October; admitted hospital, Washington, 24th October; died, 2d November, 1863.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

3011. An elongated rifle ball, with the anterior portion somewhat blunted, which entered the middle third of the left
d. 68. thigh, removed the periosteum from the femur, and was extracted from beneath the skin on the outer side of the quadriceps.

Private H. C., "B," 1st "U. S. Chasseurs" (New York Volunteers): Chancellorsville, 3d May; extracted, Washington, 11th May; had no untoward symptom, and returned to duty, 29th August, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

4396. A conoidal ball, flattened at the apex, containing a fragment of cloth in the cup. The missile entered at the
d. 69. wrist and was extracted at the inner condyle of the humerus.

Contributed by Assistant Surgeon S. A. Storrow, U. S. Army.

2226. An elongated rifle ball, with the apex somewhat blunted, which entered below the right internal malleolus, passed
d. 70. through the os calcis and was extracted from beneath the integument below the outer malleolus.

Private J. H. A., "A," 15th New Jersey: Chancellorsville, 3d May; extracted, Washington, 11th May; died, 19th May, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

4496. An elongated conoidal ball, found, after death, in the cavity of the thorax. It is notched at the apex and longitud-
d. 71. inally grooved on one side of the body.

Private E. R., "A," 8th Illinois Cavalry, 17: ball entered behind, near the fourth rib, between the spine and the scapula; admitted hospital, Washington, 13th October; died, 14th October, 1863. Fourth rib was fractured; right lung collapsed but not wounded; left lung healthy.

Contributed by Acting Assistant Surgeon A. M. Plant.

3953. An elongated rifle ball, somewhat blunted and roughened at the apex, removed from the dorsal region three inches
d. 72. below the point of entrance.

Private J. G. S., "C," 108th New York: Gettysburg, 2d July; extracted by Surgeon L. Quick, U. S. Vols., Baltimore, 22d July, 1863.

Contributed by the operator.

2994. An elongated rifle ball, with one side laterally grooved thrice and containing fragments of bone.
d. 73. Private J. W., "C," 1st Massachusetts Heavy Artillery: left hip, Spottsylvania, 19th May; extracted by Surgeon N. R. Mosely, U. S. Vols., Washington, 24th May; died, 1st June, 1864.

Contributed by the operator.

2651. An elongated rifle ball, somewhat blunted and flattened upon one side, in which small fragments of bone are
d. 74. embedded, with one and a half inches of brass wire hooked in the apex, removed after death. The missile struck the top of the sternum, fractured the head of the clavicle and the neck of the first rib, pierced the apex of the lung, fractured the angles of the second, third and fourth ribs, and lodged outside and against the fifth rib.

Lieutenant H. H. W., "D," 6th Maine: Rappahannock Station, 7th November; admitted hospital, Washington, 9th; died, 13th November, 1863.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

See **B'. B'.**

4392. A conoidal ball, slightly compressed on one side of the base, found in the body of the fifth lumbar vertebra,
d. 75. having fractured the tenth and twelfth ribs of the left side, at Pittsburgh Landing.
Contributed by Surgeon J. T. Hodgen, U. S. Vols.

4410. A conoidal ball, slightly blunted at the apex and indented just above the grooves. Knee wounded, Pittsburgh
d. 76. Landing, 7th April; obtained, 17th April, 1862.
Contributed by Surgeon J. T. Hodgen, U. S. Vols.

3009. An elongated conoidal rifle ball, from which a smooth slice has been removed on one side.
d. 77. Private T. McG., "M," 1st Vermont Cavalry: left femur, middle third, without fracture, Gettysburg, 3d July; extracted from cruræus, by Surgeon S. D. Freeman, U. S. Vols., Baltimore, 15th September, 1863.
Contributed by the operator.

4394. A conoidal ball, irregularly compressed in its body, extracted from the bladder, which it penetrated, after fracture
d. 78. of the left pubes. A slight phosphatic deposit occurred in the cup.
First Lieutenant P. (?), 35th Massachusetts: Antietam, 17th September: extracted, with several fragments of pubic bone, by operation, through the wound of entrance, by Assistant Surgeon G. M. McGill, U. S. Army, Ninth Corps Field Hospital, 21st September; progressed favorably for a few days, but is reported to have died from exhaustion the latter part of October, 1862.
Contributed by the operator.
See class **XX.** A. B. b.

1027. A conoidal ball, with two lateral grooves near the apex, removed after death from the
d. 79. right anterior lobe of the cerebrum, where it remained eighty-two days without being suspected until a week before death. *See figure* 162.
Private A. V., "A," 7th Wisconsin: entered over right eye, Gettysburg, 1st July: died, Baltimore, 20th September, 1863.
Contributed by Surgeon L. Quick, U. S. Vols.
See class **I.** A. B. d.
See **B′**.

FIG. 162. A bullet which remained eighty-two days in the brain. *Spec.* 1027.

3217. A conoidal ball, somewhat battered in the cup, extracted from between the right astragalus and scaphoid.
d. 80. Contributed by Surgeon C. F. H. Campbell, U. S. Vols.

4478. A conoidal ball, with a slight longitudinal groove on one side.
d. 81. Corporal E. D., "K," 6th Pennsylvania: entered posterior part of the left calcaneum, passed obliquely through it and lodged beneath the external malleolus, Fredericksburg, 13th December; cut out, Alexandria, 22d December, 1862.
Contributed by Acting Assistant Surgeon J. B. Bellangee.

4393. A conoidal ball, compressed toward the apex, which entered at the umbilicus and lodged in the crest of the ilium.
d. 82. Contributed by Surgeon J. H. Brinton, U. S. Vols.

4400. A conoidal ball, slightly rounded at the apex, with a deep longitudinal groove its entire
d. 83. length. *See figure* 163.
Private G. McM., "F," 25th New York: entered above the interclavicular notch of the sternum, Fredericksburg, 13th December, 1862; extracted near superior angle of scapula, Alexandria. Recovered.
Contributed by Assistant Surgeon W. A. Conover, U. S. Vols.

FIG. 163. Conoidal ball grooved by clavicle. *Spec.* 4400.

499. A conoidal ball, somewhat roughened on one side and slightly compressed at the base, removed from the middle
d. 84. third of the right thigh.
Private T. M., "B," 12th New Hampshire, 36: Gettysburg, 3d July; removed by Acting Assistant Surgeon R. H. Stirling, Baltimore, 18th July, 1863.
Contributed by Surgeon L. Quick, U. S. Vols.

1506. A conoidal ball, disfigured with numerous short lateral notches on one side, which fractured the left femur in the
d. 85. middle third.
Captain B. P. T., "F," 108th New York, 22: Chancellorsville, 3d May; extracted, Washington, 8th; died, 30th May, 1863.
Contributed by Surgeon D. W. Bliss, U. S. Vols.

1556. A conoidal ball, roughly notched, with a succession of grooves on one side in which are a few bony fragments,
d. 86. taken from the base of the right cerebral hemisphere after death, eight days after injury.
Sergeant G. C., "A," 11th New Jersey: entered right temporal bone, Chancellorsville, 3d May; paralysis left side and immobility of the right pupil; died, Washington, 11th May, 1863. No autopsy.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.

4506. A conoidal ball, obliquely flattened, to a slight extent, near the apex, removed from the right forearm. The
d. 87. interosseous artery was injured.
Private S. M., "A," 122d Ohio: Winchester, 15th June, 1863.
Contributed by Surgeon C. W. Jones, U. S. Vols.
See 1692, **XXIII.** B. c. 3.

4436. A conoidal ball, from the fractured head of the tibia. A clean oblique cut has been made near the extremity of
d. 88. the missile, from which a part of the fragment is wanting.
Contributed by Acting Assistant Surgeon W. W. Keen, jr.

4399. A heavy conoidal ball, with the body obliquely flattened and two short lateral grooves near the apex.
d. 89. Private J. P., "B," 105th Pennsylvania: entered the anterior thorax between the third and fourth ribs, on the left side, Fredericksburg, 13th December; extracted three inches below the superior angle of the left scapula near the spine, Alexandria, 21st December, 1862. Recovered, with pleural adhesions, and discharged.
Contributed by Assistant Surgeon W. A. Conover, U. S. Vols.
See B′.

232. A conoidal ball, with an oblique groove in the body, showing the rotary tendency, and slightly compressed at
d. 90. the base, which entered the right thigh and lodged in the right side of the perineum at the depth of three inches.
Wounded, Gettysburg, 2d July; extracted, 20th July, 1863.
Contributor and further history unknown.

4401. An exceedingly battered conoidal ball, extracted from behind the angle of the jaw. The apex is flattened upon
d. 91. the body, one side of which is torn into fragments that extend below the cup.
Private A. B., "H," 19th Indiana: Antietam, 17th September, 1862; extracted by Acting Assistant Surgeon G. F. French, Alexandria.
Contributed by Surgeon J. E. Summers, U. S. Vols.

520. A conoidal ball, laterally compressed and slightly curved upon itself. It entered on the side of the left thigh
d. 92. directly over the great trochanter, around which it passed and behind which it lodged. It was detected by the Nelaton probe grazing a projecting point.
Lieutenant —— G., 83d Pennsylvania: 26th May, 1864.
Contributed by Assistant Surgeon J. Sim Smith, U. S. Army.
See B′.

2860. A conoidal ball, somewhat curved upon itself, with lateral roughenings on the convex side.
d. 93. Private D. F., "C," 31st New York: left thigh, Chancellorsville, 3d May; extracted, Washington, 14th May; left the hospital on expiration of term, 8th June, 1863.
Contributed by Assistant Surgeon W. Thomson, U. S. Army.

4549. A conoidal ball, equally compressed backward from the apex so as to present a protuberant front, somewhat grooved.
d. 94. Entered the plantar surface of the left foot on the median line, passed upward, slightly fracturing the astragalus and lodging on the inner surface of the tibia three inches above the internal malleolus.
Private G. W. H., "C," 6th Louisiana, 25: Rappahannock Station, 7th November; extracted by Acting Assistant Surgeon D. W. C. Van Slyck, Washington, 11th November, 1863. Recovered.
Contributed by Surgeon D. W. Bliss, U. S. Vols
See B′.

3240. A conoidal ball, split from the apex down to the body, with two deep oblique grooves to the base and with bony
d. 95. fragments impacted.
—— S., company and regiment unknown: lodged in right supra-spinous fossa, Chancellorsville, 3d May; extracted by Assistant Surgeon H. Allen, U. S. Army, Washington, 16th October, 1863. Recovered.
Contributed by the operator.

4483. A conoidal ball, somewhat curved, with the apex obliquely flattened and a fragment rent
d. 96. off. A spicula of bone is held in the base. *See figure* 164.
Corporal W. N., "C," 142d Pennsylvania: entered one and a half inches above the outer third right clavicle, Fredericksburg, 13th December; admitted hospital, Alexandria, 19th; died, 31st December, 1862. The ball had passed longitudinally through the inferior lobe of the left lung, impinged on the body of one of the dorsal vertebræ and lodged under the greater curvature of the stomach.
Contributed by Acting Assistant Surgeon Geo. F. French.

FIG. 164. A conoida ball much distorted against a vertebra. *Spec.* 4483.

4525. A conoidal ball, compressed at the base, with a broad, shallow, longitudinal groove in the
d. 97. body, which entered the left forearm, posteriorly, two inches below the olecranon and embedded itself in the ulna.

Sergeant J. H. F., "A," 5th New Hampshire: Gettysburg, 2d July; extracted, Philadelphia, 10th July; returned to duty for muster-out, 9th August, 1863.

Contributed by Acting Assistant Surgeon C. B. King.

693. A conoidal ball, flattened from the apex backward, with the body curved over the base to a diameter of nearly an
d. 98. inch and one-fourth, which entered the front of the knee below the patella while the joint was flexed, passed upward and inward through the inner condyle and was removed from below the integument. The joint being freely opened, no pus accumulated and the case did well.

Corporal J. R., "D," 36th Ohio: Chickamauga, 19th September, 1863; ball removed by Dr. Finley, Murfreesboro'; doing well, January, 1864.

Contributed by Surgeon I. Moses, U. S. Vols.

See class **XIV.** A. B. b.

552. A conoidal ball, much contorted upon one side, with very broad oblique grooves, found resting on the trochanter
d. 99. major of the right femur, which it had shattered.

Contributed by Surgeon C. F. H. Campbell, U. S. Vols.

4555. A conoidal ball, roughly flattened, longitudinally, on one side, which entered the right gastrocnemius, passed
d. 100. upward and lodged below the knee, between the tibia and fibula.

Second Lieutenant E. G. B., "K," 15th Massachusetts, 28: Gettysburg, 2d July; removed through counter opening, Baltimore, 10th July, 1863. This officer was also wounded in the thigh and hip. Recovered.

Contributed by Surgeon C. W. Jones, U. S. Vols.

4558. A conoidal ball, detected by Nelaton's probe and extracted after twenty months' lodgement in
d. 101. the sternum. The missile is flattened upon itself from the apex to the second ring, with jagged borders. *See figure* 165.

Private J. K., "G," 69th New York: bullet struck two inches to the left of the mesial line at the fourth rib and lodged in the lower portion of the body of the sternum, Malvern Hill, 1st July, 1862; discharged the service, spring of 1863; wound healed and reënlisted, February, 1864; wound reopened on exposure; bullet discovered and extracted by Surgeon Wm. O'Meagher, 69th New York, April, 1864.

Contributed by the operator.

See **B′**. *See* **B″**.

FIG. 165. Battered conoidal ball lodged twenty months in sternum. *Spec.* 4558.

4562. A conoidal ball, flattened upon itself in the middle of its body, with an oblique flattening at
d. 102. one border. The missile is very heavy. The special feature of the specimen is that it was so distorted against the inferior maxilla without fracture of that bone. *See figure* 166.

Contributed by Assistant Surgeon J. T. Calhoun, U. S. Army.

4434. A conoidal ball, obliquely blunted and roughened, extracted from the spine of the scapula.
d. 103. Contributed by Assistant Surgeon J. B. Brinton, U. S. Army.

FIG. 166. A conoida ball flattened upon itself. *Spec.* 4562.

4575. A conoidal ball, battered into an irregular and ragged oblong, which entered two and a half
d. 104. inches to the left of the second dorsal vertebra, passed upward superficially, wounded the left lung and lodged behind the head of the humerus.

Private T. R. M., "K," 1st Massachusetts, 20: Malvern Hill, 1st July; admitted hospital, Philadelphia, 30th July; abscess around the head of the humerus; bloody froth exuded from the wound on expiration; extracted, by incision above the inferior posterior angle of the scapula, by Acting Assistant Surgeon E. Hartshorne, 11th August, 1862; discharged, 27th February, 1863.

Contributed by the operator.

See class **XIX.** A. B. a.

4551. A conoidal ball, irregularly battered on one side of the body and compressed at the base. The missile passed
d. 105. through the trapezius, comminuted the spine of the scapula and lodged in the infraspinous fossa.

Corporal F. H. P., "A," 2d Massachusetts: Cedar Mountain, 9th August; extracted by Acting Assistant Surgeon W. Leon Hammond, Alexandria, 15th August, 1862.

Contributed by Surgeon J. E. Summers, U. S. Army.

4550. The greater part of a conoidal ball which ploughed through the shaft of the femur. The body is obliquely
d. 106. flattened and grooved. Pittsburgh Landing, 6th April; removed, 16th April, 1862.

Contributed by Surgeon J. T. Hodgen, U. S. Vols.

4490. An elongated rifle ball, whose length has been slightly increased by compression and which is covered with shallow
d. 107. parallel grooves. There is a loss of one-half square inch of its body in the upper part, showing a cavity, a not infrequent defect in cast bullets due to the unequal cooling.

Contributed by Surgeon A. Hard, 8th Illinois Cavalry.

4508. d. 108. A conoidal ball, laterally and irregularly compressed on both sides for its entire length, which entered the capsule of the left humerus, involved the acromio-clavicular articulation, comminuted the spine of the scapula and lodged near the inferior angle.

Private A. J. Q., "G," 16th Maine: Fredericksburg, 13th December; bullet removed by Assistant Surgeon W. A. Conover, U. S. Vols., Alexandria, 20th December, 1862; fragments of bone and acromion removed, 6th January, 1863. Recovered, with partial use of arm.

Contributed by the operator.

4505. d. 109. A conoidal ball, exceedingly misshapen by being compressed and bent upon itself, with jagged extremities and longitudinal grooves on one side and a comparatively smooth surface on the other. Removed from among the fragments of the clavicle, having entered above the angle of the left scapula.

Sergeant J. V. F., "E," 97th New York.

Contributed by Surgeon Chas. Page, U. S. Army.

4524. d. 110. A conoidal ball, much roughened by transverse notching at the apex and an irregular, jagged protuberance upon one side, which entered the dorsum of the right scapula and was removed from the centre of the axillary space.

Corporal C. K., "C," 27th Pennsylvania: Gettysburg, 1st July; removed by incision, Philadelphia, 24th July, 1863; returned to duty, 3d May, 1864.

Contributed by Acting Assistant Surgeon Charles Carter.

4537. d. 111. A conoidal ball, with nearly one-third of the body smoothly and obliquely split off from the apex and turned back and joined at the base, forming a plane surface with ragged edges. The ball could not be found during life. *See figure* 167.

Private P. McC., 4th New York Cavalry: Antietam, 17th September; entered the mouth, injured the tongue and soft parts, comminuted the right inferior maxilla to the ramus, and produced a distortion outward. The ball divided the symphysis of the lower jaw as with a knife, dissected the sterno-mastoid muscle on its inner side for its whole length and lodged in the triangle formed by the trachea in the median line, the omo-hyoid and the sternum without injuring that bone. The common carotid was grazed one inch from its bifurcation, and ulcerated by the twelfth day sufficiently to admit the tip of the little finger; died from secondary hæmorrhage, Frederick, 29th September, 1862.

Contributed by Assistant Surgeon P. Adolphus, U. S. Army.

See classes **II.** A. B. b.; **XVIII. II.** A. B. a.

FIG. 167. A conoidal ball split and flattened by the inferior maxilla. *Spec.* 4537.

4518. d. 112. A conoidal ball, exceedingly battered and increased longitudinally by compression, with a spicula of bone, as if from the inferior maxilla, lodged in it.

Private J. A. S., "C," 98th Pennsylvania, 24: entered one inch below the left eye, passed through the mouth and lodged superficially on the right side of the neck one and a half inches below the right ear, Second Fredericksburg, 3d May; removed, Philadelphia, 2d July; healed, with enlargement of the right side of the face, 12th December, 1863.

Contributed by Acting Assistant Surgeon David Burpee.

See 1554, **XXV.** A. A. a. 4.

4533. d. 113. The greater part of a small conoidal ball, with the apex flattened upon the body and the base laterally compressed, which entered the right superior maxilla and was extracted from beneath the integument of the mastoid process of the temporal bone.

Private J. S., "H," 7th Wisconsin: Gettysburg, 1st July; returned to duty, 4th November, 1863.

Contributed by Acting Assistant Surgeon David Burpee.

4715. d. 114. A conoidal ball, beaten into an irregular oblong, extracted from the right temple seventy-nine days after lodgement. *See figure* 168.

Private J. A. F., "F," 20th Indiana, 20: struck the left side of the bridge of the nose, passed upward, backward and outward to the right, destroyed the right eye, passed through the outer wall of the orbit and lodged beyond, Chancellorsville, 3d May; extracted from the right temporal muscle beneath the fascia, by Surgeon John A. Lidell, U. S. Vols., Washington, 25th July, 1863. At no time had paralysis or any serious symptoms.

Contributed by the operator.

See class **I.** A. B. e.

See **B′**.

FIG. 168. A battered conoidal ball from the temporal fascia after seventy-nine days. *Spec.* 4715.

4398. d. 115. A conoidal ball, with one lateral half of the body smoothed into the concavity of a segment of a large circle.

Private H. B., 27th Indiana, 21: bullet entered four inches below and a little posterior to the right trochanter major, Antietam, 17th September; extracted from the front of the femur, by Acting Assistant Surgeon W. W. Keen, jr., Frederick, 25th September, 1862. The periosteum was removed, but the bone was not fractured and the subject recovered.

Contributed by the operator.

4465. A conoidal ball, obliquely flattened through the body, with the apex bent over and resting against the base. The
d. 116. ball penetrated the thorax and lodged behind the elbow.
Contributed by Acting Assistant Surgeon J. Robertson.

3192. A conoidal ball, somewhat curved upon itself, with the base compressed. The external curve has several longitudinal
d. 117. grooves. The specimen illustrates how projectiles of this class may sometimes be deflected.
Private J. C., "I," 1st "U. S. Sharpshooters" (Volunteers): cartilage fifth rib, Mine Run, Va., 27th November; the bullet ran around the chest on the rib and was removed, with a few bony fragments, by Surgeon D. P. Smith, U. S. Vols., near Alexandria, 7th December, 1863. Recovered rapidly without pleurisy.
Contributed by the operator.
See **B′**.

1516. A conoidal ball, compressed at the base and obliquely flattened at the apex and in the body. It entered one inch
d. 118. below the middle of the spine of the right scapula, passed forward through the axillary space and fractured the upper third of the humerus.
Private W. L., "I," 26th Wisconsin: Chancellorsville, 3d May; amputated at the shoulder joint by Surgeon O. A. Judson, U. S. Vols., Washington, 16th May, 1863. Recovered.
Contributed by the operator.
See 1213, **V.** A. B. d. 22.

2706. A conoidal ball, with the apex compressed down upon the body, which is forced out laterally and has received a
d. 119. deep groove across the upper surface.
Private H. O'N., "I," 110th Pennsylvania: right thigh, Chancellorsville, 2d May; extracted, "by a counter opening from directly under the femoral artery in Hunter's canal, without hæmorrhage," by Surgeon D. P. Smith, U. S. Vols., near Alexandria, 22d June, 1863.
Contributed by the operator.

4563. A conoidal ball battered out of all describable shape, with irregular, jagged edges, which was extracted by the
d. 120. finger from the right tonsil after comminution of portions of the upper and lower alveoli and several teeth and laceration of the right border of the tongue, for two inches from the teeth. Several spiculæ of bone are embedded in the specimen.
Corporal J. H. P., "H," 19th Maine, 21: Spottsylvania, 12th May; died, Washington, 29th May, 1864.
Contributed by Surgeon Wm. O'Meagher, 69th New York.
See **B′**.

4567. A conoidal ball, curiously changed, as if by the direct compression of the apex into the body, without serious
d. 121. modification of the external form.
Contributed by Surgeon Wm. O'Meagher, 69th New York.

4464. A conoidal ball, blunted at the apex, with the base partly split open, compressed and expanded.
d. 122. Corporal W. C., "E," 2d Massachusetts: ball entered the lowest third of the right forearm, fractured the ulna and lodged behind the elbow, Cedar Mountain, 9th August; ball cut out and arm saved; discharged the service, 5th November, 1862.
Contributed by Surgeon J. E. Summers, U. S. Army.

464. An oval, flattened fragment of lead, as if a longitudinal section of a conoidal ball, taken from the anterior surface
d. 123. of the middle third of the right thigh, having passed directly through the limb. Other fragments were probably lodged in the shattered bone.
Contributed by Surgeon Samuel Brillantowski, 41st New York.

4414. A portion of a small conoidal ball, very much battered and broken up with bony particles impacted, which entered
d. 124. behind and shattered the lowest fourth of the tibia, Pittsburgh Landing, 6th April; extracted by an anterior incision, 15th April, 1862.
Contributed by Surgeon J. T. Hodgen, U. S. Vols.

4461. Two thin, flattened fragments of lead, with irregular outlines, probably severed from a conoidal ball. Extracted,
d. 125. with bony sequestra, from the thigh.
Private T. G. C., "H," 87th New York: admitted hospital, Philadelphia, 28th June; specimen removed, 1st August; discharged, with two inches shortening, 29th September, 1862.
Contributed by Acting Assistant Surgeon Thomas G. Morton.
See 644, **XIII.** A. B. g. 4.

3191. An irregular fragment of a conoidal ball, in which is embedded one and a half inches of wire bent at right angles,
d. 126. evidently a part of a buckle from the accoutrements.

—— —— H., "I," 3d U. S. Infantry: Gettysburg.

Contributor and history unknown.

See **B'. B'.**

3174. A conoidal ball, laterally flattened on one side, with the apex roughly blunted. The scapula was fractured.
d. 127. Contributed by Surgeon L. Quick, U. S. Vols.

4295. A conoidal ball, with the apex forced down into the body and one side much roughened. The missile struck and
d. 128. lodged at the symphysis of the superior maxilla, whence it was extracted on the field.

—— ——, Orderly to General Milroy: Second Bull Run, 29th August, 1862.

Contributed by Surgeon Samuel Brillantowski, 41st New York.

1236. A conoidal ball, apparently split longitudinally and laterally expanded and flattened. The missile evidently struck
d. 129. in the act of longitudinal rotation. Entered three inches above the patella and extracted behind the trochanter major of the right femur.

Contributed by Surgeon E. D. Kittoe, U. S. Vols.

1411. A conoidal ball, compressed at the base and laterally grooved at the apex. The missile entered the right thigh
d. 130. anteriorly and was extracted below the knee, which received no perceptible injury.

First Lieutenant J. A. O., "G," 15th Alabama (Rebel): Gettysburg, 2d July; died, cause unknown, 27th July, 1863.

Contributed by Assistant Surgeon E. de W. Breneman, U. S. Army.

1587. A conoidal ball, somewhat elongated, laterally compressed, flattened at the apex and bent upon itself. The missile
d. 131. entered the left shoulder below the acromion and was extracted near the axilla over the third rib.

Private C. N. L., "B," 1st Maine Artillery: Petersburg, 15th June; removed through incision to relieve dyspnœa, by Assistant Surgeon F. Wolf, U. S. Vols., City Point, 20th June, 1864.

Contributed by the operator.

1547. A thin piece of lead nearly one inch square, as if the cup portion of a conoidal ball, completely flattened,
d. 132. extracted from above the popliteal space eight months after injury.

First Sergeant C. McL., "E," 10th Pennsylvania Reserves: Gaines' Mill, 27th June, 1862.

Contributed by Surgeon John A. Lidell, U. S. Vols.

See **B'.**

1439. A conoidal ball, misshapen in the apex and body by being battered backward upon itself into a broad surface with
d. 133. ragged edges, with bony spiculæ embedded. Extracted, post mortem, from the posterior mediastinum behind the arch of the aorta, having entered below the malar bone.

Received after Gettysburg.

1422. A conoidal ball, with the apex driven into the body, studded with particles of bone. Entered the right side
d. 134. between the second and third ribs and passed around to the inner border of the scapula. An instance of deflection in a conoidal ball.

Private M., "I," 63d New York: extracted by Acting Assistant Surgeon A. T. Pick, Baltimore.

Contributed by the operator.

See **B'.**

2334. A conoidal ball, somewhat flattened at the base, with the body contorted into a curved form with a smooth surface.
d. 135. Private G. F., "K," 39th New York, 35: admitted hospital, Washington, 17th May; ball extracted from the upper third of the arm by Surgeon N. R. Mosely, U. S. Vols., Washington, 22d May; returned to duty from New York, 9th September, 1864.

Contributed by the operator.

4277. A conoidal ball, having no change of shape, which entered the outer side of the right thigh, denuded the femur of
d. 136. periosteum for several inches, deflected upward and was extracted below the crest of the ilium.

Private H. C., "D," 6th Maine: Chancellorsville, 3d May; extracted, Washington, 14th May; transferred North, 3d July, 1863.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

2307. A conoidal ball, with the apex smoothly driven down into the body by being blunted against bone. Removed, at
d. 137. the Second Bull Run, from near the left tibia, which was not fractured.
Contributed by Surgeon Samuel Brillantowski, 41st New York.

1858. A longitudinal half of the lowest third of a conoidal ball, with a few embedded fragments of bone, which was
d. 138. extracted from the left side of the throat, 2d April, 1863, for a wound received, Fredericksburg, 13th December, 1862.
Contributed by Surgeon John A. Lidell, U. S. Vols.

941. A conoidal ball, with the base obliquely and perfectly flattened toward the apex, which entered "the left femur
d. 139. [thigh] about four inches above the external condyle and traversed upward. Cut out six weeks afterward at the upper end of the sacrum." The base of the ball was the first point of contact.
Contributed by Surgeon E. D. Kittoe, U. S. Vols.
See B′.

1371. A conoidal ball, with the cup split open and flattened and the apex curled backward. A fragment of cloth is
d. 140. contained in the specimen.
Private H. S., "C," 12th U. S. Infantry: entered the left calf, Gettysburg, 2d July; extracted over the spine of the tibia by Assistant Surgeon E. de W. Breneman, U. S. Army, 8th July, 1863. The bone was not fractured.
Contributed by the operator.

4296. A conoidal ball, with the apex bent over and flattened against the body, with a fragment as low as the compressed
d. 141. cup. Extracted, after Cedar Mountain, from near the elbow. There was no fracture.
Contributed by Surgeon Samuel Brillantowski, 41st New York.

3154. A distorted fragment of a conoidal ball, after fracture of the femur. The missile is rudely
d. 142. fashioned like a shallow cup.
Contributed by Surgeon John A. Lidell, U. S. Vols.

2645. A conoidal ball, laterally and smoothly flattened somewhat as a fan. The smooth surface
d. 143. has a multitude of shallow parallel grooves. *See figure* 169.
Private J. L., "F," 6th U. S. Infantry: entered the sole of the right foot, Gettysburg, 2d July; extracted by Assistant Surgeon E. de W. Breneman, U. S. Army; died of gangrene, 27th July, 1863.
Contributed by the operator.

FIG. 169. Curiously flattened conoidal ball extracted from the sole of the foot. *Spec.* 2645.

1033. A conoidal rifle ball, greatly contorted by the fracture of both bones of the forearm.
d. 144. Contributed by Surgeon L. Quick, U. S. Vols.

1560. A longitudinal half of a conoidal ball, flattened, with inverted edges. A smaller fragment is attached. The missile
d. 145. shattered the middle third of the right clavicle and was found at the autopsy beneath the scapula enclosed in a portion of uniform coat.
Private G. H. H., "E," 5th Maine, 20: Rappahannock Station, 7th November; died, Washington, 14th November, 1863.
Contributed by Surgeon D. W. Bliss, U. S. Vols.

1075. A conoidal rifle ball, obliquely flattened in the body and much roughened by fracturing the femur.
d. 146. Contributed by Surgeon John A. Lidell, U. S. Vols.

4293. A conoidal ball, with the apex somewhat bent over, compressed backward and flattened upon itself against the
d. 147. base. Removed from the left shoulder during excision of the head of the humerus.
Private H. T., "H," 14th Indiana, 24: Chancellorsville, 3d May; excised by Surgeon O. A. Judson, U. S. Vols., Washington, 25th May; died from pyæmia, 10th June, 1864.
Contributed by the operator.
See 1208, **V.** A. B. c. 77.

664. A conoidal ball, longitudinally split and flattened with a fragment of the National uniform embraced in one
d. 148. border. The specimen is nearly circular, with a diameter of one and one-fourth inches.
Private H. C. Y., "D," 11th Georgia, (Rebel.) 24: posterior middle third left thigh, Funkstown, Md., 10th July; extracted from the anterior surface, Frederick, 3d August; transferred to Baltimore, "cured," 5th September, 1863.
Contributed by Acting Assistant Surgeon J. H. Bartholf.
See B′. B′.

1505. A conoidal ball, flattened in the body, with a small portion bent backward to the edge of the cup, from a fractured
d. 149. forearm.
Contributed by Surgeon A. Hard. 8th Illinois Cavalry.

1563. The greater part of a conoidal ball, beaten into a solid, irregular, ragged rectangle, two triangular fragments of
d. 150. flat bones with each side three-fourths of an inch in length, and two-thirds of a circle of bone removed by the trephine: all evidently the result of a wound of the skull.

Contributor and history unknown.

See class **I.** A. B. c.

2643. A conoidal ball, with one side of the body obliquely flattened and grooved, extracted after death.
d. 151. Private J. B., "A," 125th New York: entered between third and fourth ribs, three inches from the median line, and perforated the right lung, Gettysburg, 3d July; died, Baltimore, 9th July, 1863. The lung was compressed by three quarts of sero-purulent effusion.

Contributed by Surgeon L. Quick, U. S. Vols.

4409. A conoidal ball, which shattered the tibia, split longitudinally to the base and flattened by backward bending.
d. 152. Contributed by Assistant Surgeon B. A. Clements, U. S. Army.

4626. A conoidal ball, laterally compressed, with a longitudinal groove on one surface and irregularly battered along one
d. 153. edge. A close examination shows the punctures made by an exploring needle.

Second Lieutenant J. H. R., "K," 9th Virginia (Rebel): ball entered the anterior surface of the middle third of the forearm, passed between the bones without fracture and lodged below the inner condyles of the humerus, Gettysburg, 3d July; extracted by Surgeon T. H. Bache, U. S. Vols., Chester, Pennsylvania, 11th December, 1863.

Contributed by the operator.

See **B′**.

4411. A conoidal ball, flattened in both directions, as if by contact with the shaft of a large bone near the centre of the
d. 154. missile. The apex is undisturbed in shape. Impact evidently occurred when the ball was revolving on its short axis and probably at a low velocity.

From a femur fractured and necrosed.

Contributed by Assistant Surgeon B. A. Clements, U. S. Army.

4402. A conoidal ball, laterally grooved into a large concavity by impact while revolving on its short axis. Entered
d. 155. the inside of the middle of the thigh, (Rebel,) Pittsburgh Landing, 7th April, and extracted behind the head of the fibula, 21st April, 1862.

Contributed by Surgeon J. T. Hodgen, U. S. Vols.

2735. A conoidal ball, with the apex compressed back upon the body, removed, after death, from the
d. 156. anterior mediastinum. *See figure* 170.

Private J. A. S., "C," 145th Pennsylvania, 19: perforated left scapula below the spine, splintered the sternal end of the first rib and lodged behind the sternum, opposite the first intercostal space. Two quarts of sero-sanguinous fluid were found in the left pleura.

Contributed by Surgeon L. Quick, U. S. Vols.

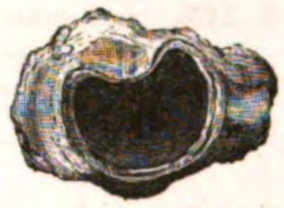

FIG. 170. A conoida ball compressed upon itself. *Spec.* 2735.

3083. A much-battered conoidal ball, which entered the back of the right hip and emerged two and a half inches above
d. 157. and internally to the right anterior superior spinous process, at Pittsburgh Landing. The apex is driven down upon the body, a fragment of which is borne back beyond the cup.

Contributed by Surgeon J. T. Hodgen, U. S. Vols.

2669. A conoidal ball, laterally compressed, with a deep longitudinal groove on the more flattened side, which entered
d. 158. above the crest of the right ilium and lodged beneath the integument two and half inches from the median line.

Private C. S., "E," 68th Pennsylvania: Gettysburg. Extracted by Acting Assistant Surgeon W. G. Smull, Baltimore.

Contributed by Surgeon L. Quick, U. S. Vols.

4415. A conoidal ball, in two thin, unequal pieces, both longitudinally flattened from a comminuted fracture of the femur.
d. 159. Contributed by Surgeon A. B. Hasson, U. S. Army.

4418. Two distorted fragments from the base of a conoidal ball, with three small pieces of the laminated structure of
d. 160. the femur.

Private L. F. M., "A," 142d Pennsylvania: ball entered six inches above the knee and struck the femur above the outer condyle one and a half inches from the extremity, Fredericksburg, 13th December, 1862; it crushed through the outer table and was found impinging on the articular surface, which was fractured but not displaced. The synovial cavity was uninjured, no constitutional symptoms supervened and the joint remained perfect to 26th March, 1863.

Contributed by Assistant Surgeon C. S. Frink, U. S. Vols.

See class **XIV.** A. B. a.

4420. A conoidal ball, with the body somewhat compressed upon itself and part of the apex missing.
d. 161. Private A. C., "C," 26th Pennsylvania: Gettysburg, 2d July; extracted from the right side of the tenth dorsal vertebra, Philadelphia, 12th July, 1863. Recovered well.
Contributed by Acting Assistant Surgeon P. Middleton.

4422. An irregular and distorted fragment of a conoidal ball, as if from the base, an inch and one-fourth in length and
d. 162. three-fourths of an inch wide.
Corporal D. L., "C," 63d Pennsylvania: ball entered one and a half inches above the right patella and lodged at its upper edge and a little to its right, Chancellorsville, 3d May; inconvenience slight; cut out 15th August, 1863. Recovered in a week.
Contributed by Surgeon W. W. Keen, jr.

4423. A conoidal ball, smoothly flattened over a surface of one by one and a half inches by contact with the femur, not
d. 163. producing fracture. The flattening is lateral, as if by being rolled out after splitting.
Contributed by Acting Assistant Surgeon W. W. Keen, jr.

4403. The greater part of a conoidal ball, which entered the meatus auditorius externus
d. 164. of the left ear to the depth of an inch, at the battle of Cedar Mountain, 9th August, and lodged in the mastoid process. An abscess formed and was opened on the posterior border of the sterno-cleido-mastoideus, three and one-fourth inches below the meatus, 8th October; the specimen was extracted through the opening of the abscess, 3d November, 1862. When reported, it was considered that the soldier would recover with deafness. The missile is flattened about an inch square and greatly misshapen. *See figure* 171.
Contributed by Surgeon Charles Page, U. S. Army.
See B′.

FIG. 171. Conoidal ball from left ear. Recovery. *Spec.* 4403

4406. A conoidal ball, which was first split nearly longitudinally and then flattened by the bending downward of one
d. 165. section and laterally of both, which entered the outer side of the right thigh of a Rebel, Pittsburgh Landing, 7th April, and removed from the inner side four inches from above, 21st April, 1862.
Contributed by Surgeon J. T. Hodgen, U. S. Vols.

4470. A conoidal ball, much misshapen, with the apex turned back to the base. It is encrusted with blood and dried,
d. 166. membrane-like tissue. Traversed the back of the neck and shoulder and lodged in the left arm, Fredericksburg, 13th December; extracted 31st December, 1862.
Contributor and further history unknown.
See B′.

4481. A conoidal ball, exceedingly misshapen by deep and irregular longitudinal and oblique grooves.
d. 167. Private F. N., "G," 20th New York: Fairfax Court-house, 2d September; extracted one inch above the external condyle of the humerus, Alexandria, 21st November, 1862.
Contributed by Acting Assistant Surgeon Geo. F. French.

4466. A conoidal ball, with the apex flattened and compressed into the body, which is irregularly roughened.
d. 168. Private V. S., 9th Pennsylvania: before Richmond, 17th June; extracted near the spine of the eighth dorsal vertebra, Baltimore, 1st August, 1862. Recovered.
Contributed by Surgeon L. Quick, U. S. Vols.

4469. A conoidal ball, with the apex obliquely flattened and expanded over a diameter of one and one-fourth inches from
d. 169. a fractured femur.
Contributed by Acting Assistant Surgeon E. Hartshorne.

4440. A much-battered conoidal ball, which entered to the inside of the point of the left heel and emerged on the inner
d. 170. side of the metatarsal bone of the great toe, injuring the os calcis.
Private I. M., "G," 72d Pennsylvania, 25: Antietam, 17th September, 1862. Recovered.
Contributed by Acting Assistant Surgeon W. W. Keen, jr.

4438. About one-half of a small conoidal ball, after longitudinal division and irregular flattening from the fracture of
d. 171. the clavicle.
Contributed by Acting Assistant Surgeon W. W. Keen, jr.

4437. A small conoidal ball, removed, after death, from behind the head of the femur. The missile is very smoothly
d. 172. flattened laterally over an extent of three-fourths by one and a half inches.
Contributed by Acting Assistant Surgeon W. W. Keen, jr.

4428. A conoidal ball, longitudinally grooved, with the base compressed and flared open.
d. 173. Corporal J. S., "C," 20th Massachusetts: perforated superior maxilla and severed internal maxillary artery.
Contributed by Acting Assistant Surgeon W. W. Keen, jr.

4430. A conoidal ball, compressed at the base and the apex and slightly curved laterally. Taken from an abscess on the
d. 174. right side of the spine.
Contributed by Assistant Surgeon James Phillips, U. S. Army.

4425. The inferior two-thirds of a conoidal ball, obliquely roughened by fracturing the inferior maxilla.
d. 175. Contributed by Assistant Surgeon Philip Adolphus, U. S. Army.

3076. A conoidal ball, longitudinally flattened over a narrow space on one side of the body and longitudinally flattened
d. 176. and grooved near the apex on the opposite side. This missile traversed the left forearm, the left thorax, the left side of the diaphragm, the left kidney, the left psoas magnus muscle, and was extracted from the body of the second lumbar vertebra after death, which occurred six days after injury.
Contributed by Surgeon John A. Lidell, U. S. Vols.
See **B′**.

728. The lower half of a conoidal ball, irregularly and jaggedly flattened over the cupped portion, which entered the
d. 177. left groin and was extracted, "by counter opening through the buttock, without untoward complications."
Private B. J., "G," 141st Pennsylvania: Chancellorsville, 3d May; extracted by Surgeon D. P. Smith, U. S. Vols., near Alexandria, 14th June, 1863.
Contributed by the operator.

4623. A conoidal ball, regularly compressed at the apex and base and slightly curved upon itself, which entered to the
d. 178. right of the last dorsal vertebra and lodged in the right iliac fossa.
Private J. S., "G," 184th Pennsylvania, 18: Deep Bottom, Va., 14th August; admitted hospital, Washington, 17th; removed, with fragments of vertebral process and crest of ilium, through an incision of two inches, by Surgeon N. R. Mosely, U. S. Vols., 19th August; returned to duty, 7th December, 1864.
Contributed by the operator.
See class **III.** A. B. a.

4573. The cup portion of a conoidal ball, somewhat battered, which entered the right of the lower part of the sternum
d. 179. near its edge and was removed over the sixth rib to the left of the sternum and below the wound of entrance.
Corporal D. F. L., "H," 111th Pennsylvania, 35: probably, Antietam, 17th September; removed to Philadelphia, 24th September; discharged, 27th October, 1862.
Contributed by Acting Assistant Surgeon E. Hartshorne.
See **B′**.

4572. A conoidal ball, with one-half of the apex and body flattened upon the base The missile entered beneath the left
d. 180. clavicle at the junction of the middle and outer thirds, fractured the first rib, perforated the upper lobes of both lungs, passed between the second and third ribs of the right side about three inches from the spine, struck the scapula and glanced into the axilla, whence it was removed after death.
Lieutenant B. B., "K," 10th New York Cavalry: wounded, 19th June; admitted hospital, Washington, 21st; died, 23d June, 1863. The left pleural cavity was filled with blood and the lung solid. The right lung was healthy, except as to the wound.
Contributed by Assistant Surgeon A. M. Plant, 14th Vermont.
See **B′**.

1820. A conoidal ball, in longitudinal halves, much distorted, which entered below the right acromion, split on the axillary
d. 181. border of the scapula and one-half lodged internally to the inferior angle and opposite the middle of the external border.
Corporal J. K., "L," 1st Pennsylvania Cavalry, 23: wounded, 13th September; extracted by Surgeon D. W. Bliss, Washington, 31st October; returned to duty, 24th December, 1863.
Contributed by the operator.

2631. A conoidal ball, much battered at the apex with longitudinal groovings.
d. 182. Private L. M., "G," 26th New York: entered the left forearm, Fredericksburg, 13th December, 1862; extracted from over the annular ligament below the ulnar and radial arteries, by Acting Assistant Surgeon Theodore Artaud, Baltimore, 21st February, 1863. Recovered.
Contributed by the operator.

1395. A conoidal ball, obliquely flattened on one side of the body near the apex, which entered the
d. 183. anterior aspect of the right shoulder and was extracted at the lower angle of the scapula.

Private N. F., "E," 6th Maine: Rappahannock Station, 7th November; admitted hospital, Washington, 9th November, 1863.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

FIG. 172. Battered conoidal ball which entered seventh rib and escaped by the rectum. *Spec.* 1569.

1569. A conoidal ball, much disfigured by the apex being driven into the body and the whole raggedly
d. 184. notched and containing several bony spiculæ embedded. The bullet entered through the cartilaginous portion of the seventh rib, passing into the region of the transverse colon and escaping, per anum, five weeks afterward. *See figure* 172.

Private T. B. B., "C," 155th Pennsylvania: Petersburg, 25th March; admitted hospital, Washington, 24th April; ball passed at stool, 29th April; discharged, 22d September, 1865.

Contributed by Acting Assistant Surgeon C. H. Bowen.

See **B′**.

4150. A conoidal ball, which appears to have struck base first, obliquely flattened and from which a
d. 185. portion is wanting. *See figure* 173.

Corporal —— McD., "F," 6th South Carolina Cavalry (Rebel): occiput smoothly perforated to admit the point of the little finger, John's Island, South Carolina, 10th February, 1864. The missile was found beneath the scalp one inch from the original wound. Died in twenty-four hours.

Contributed by Surgeon Samuel Brillantowski, 41st New York.

See class **I.** A. B. a.

FIG. 173. Side view of a conoidal ball flattened against the occiput. *Spec.* 4150.

2730. A conoidal ball much distorted. The upper portion has been longitudinally split, rotated upon
d. 186. itself and bent downward below the base. The balance contains spiculæ of bone.

Private E. W. R., "D," 1st New Jersey: entered behind left external malleolus, Chancellorsville, 3d May; comminuted the third and fourth metatarsals; extracted from below the fourth metatarsal, Washington, 11th May; discharged, 15th November, 1863. Several attacks of erysipelas occurred and spiculæ of bone were removed, but the ankle remained intact and the fractured bones were consolidated.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

See class **XVII.** A. B. b.

4569. A conoidal ball, split longitudinally from the apex into the body, with the halves separated and rounded and the
d. 187. base somewhat roughened.

Private M. W., "C," 6th Connecticut, 33: left forearm, Fort Wagner, S. C., 18th July; ball removed, Beaufort, S. C., 25th October, 1863; some exfoliation from the radius; deserted, on furlough, 12th March, 1864.

Contributed by Assistant Surgeon C. E. Goddard, U. S. Army.

2771. A conoidal ball, longitudinally split with an exceedingly ragged
d. 188. section, with bony spiculæ embodied. A large fragment of the bullet torn off is mounted with it. The missile struck the left side of the cranium behind the ear, passed through the scalp posteriorly, re-entered between the shoulders and was extracted from the right axilla.

Private J. D., "H," 6th U. S. Infantry: Gettysburg, 2d July; extracted, 6th; transferred to General Hospital, 13th July, 1863.

Contributed by Assistant Surgeon E. de W. Breneman, U. S. Army.

See class **I.** A. A. e.

See **B′**.

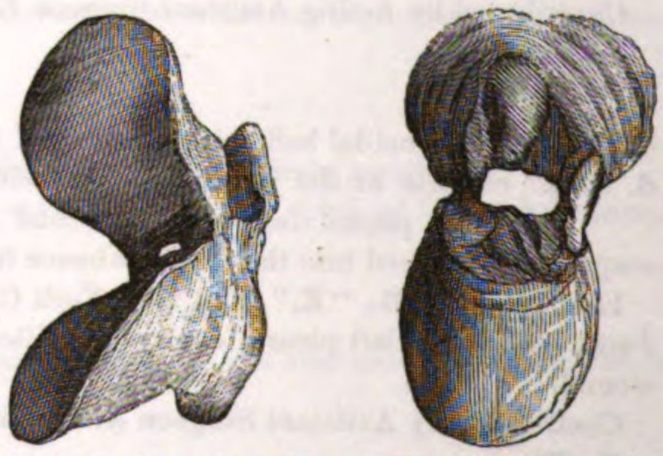

FIG. 174. Two views of a conoidal ball split on the tibia. *Spec.* 4279.

4279. A conoidal ball, smoothly split from the apex to the second ring,
d. 189. with the two halves turned backward. The bullet lodged astride of the middle third of the tibia and was discovered by the Nelaton] robe after an unavailing search by ordinary means. *See figure* 174.

From a soldier of the regular Infantry, Wilderness, 5th May, 1864.

Contributed by Assistant Surgeon J. Sim Smith, U. S. Army.

See **B″**.

FIG. 175. A conoidal ball curiously split on the tibia. *Spec.* 209.

209. A conoidal ball, with the base split into three equal parts, two of which are curled
d. 190. outwardly upon themselves. The second groove is almost obliterated. The missile struck the crest of the tibia, apparently base first, passed between the bones and was extracted five weeks after injury. *See figure* 175.

Contributed by Surgeon Edward D. Kittoe, U. S. Vols.

563. A conoidal ball, somewhat roughened near the apex, which entered one inch to the left of the spine of the sixth
d. 191. dorsal vertebra and lodged one inch inside of the right nipple.

Private C. E. L., "E," 57th New York, 34: Rappahannock Station, 7th November; extracted, Washington, 10th; died, 16th November, 1863.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

1494. A conoidal ball, misshappen by oblique compression at the base and by the apex being bent over and into the body
d. 192. on the opposite side, roughened and holding bony spiculæ.

Private R. J., "D," 121st New York, 25: entered two inches above the left clavicle, Rappahannock Station, 7th November; extracted from inferior angle of scapula; died, Washington, 17th November, 1863. This man also received a flesh wound through the left thigh and contusion of both legs in the lowest thirds.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

404. A conoidal ball, laterally compressed, with several irregular notches on the more convex side, entered above and in
d. 193. front of the lower angle of the right scapula, apparently fracturing a rib.

Private G. W. L., "H," 26th Pennsylvania: Second Fredericksburg, 3d May; extracted by Acting Assistant Surgeon B. F. Craig, Washington, 24th May, 1863. Recovered.

Contributed by the operator.

2241. A conoidal ball, with the apex somewhat driven into the body and the whole laterally compressed, with a fragment
d. 194. projecting, flattened, from one side. The missile perforated the pubes near the symphysis, passed to the left for eight inches in an oblique direction and lodged against the femur behind the trochanter major, where it was detected by the Nelaton probe.

Lieutenant Colonel P., 39th Massachusetts: wounded, 30th August; examined while suffering peritonitis and cystitis, and bullet cut out, 10th September, 1864.

Contributed by Assistant Surgeon J. Sim Smith, U. S. Army.

See **B′**. *See* **B″**.

4716. A conoidal ball, blunted by the apex being driven down into the body, and with irregular compression of the cup,
d. 195. which entered the head of the tibia and was found in the popliteal space. Wounded, Pittsburgh Landing, 7th April; died, 22d April, 1862.

Contributed by Surgeon J. T. Hodgen, U. S. Vols.

2851. A conoidal ball, slightly grooved by passage over bone, particles of which are impacted.
d. 196. Contributed by Surgeon A. Hard, 8th Illinois Cavalry.

2393. A conoidal ball, laterally compressed, with longitudinal grooves on the convex surface, which entered the dorsum
d. 197. of the right foot two inches from the metatarso-phalangeal articulation and was extracted from the sole immediately beneath.

Corporal E. N. M., "G," 119th Pensylvania: Rappahannock Station, 7th November; extracted, Washington, 10th November, 1863; transferred to Veteran Reserve Corps, 13th January, 1865.

Contributed by Surgeon D. W. Bliss, U. S. Vols.

1424. A conoidal ball and two spiculæ of bone. The missile is much bruised on one longitudinal half of the body. It
d. 198. entered beneath the left clavicle and was removed from the bicipital groove at the insertion of the deltoid, the head of the humerus being fractured.

Corporal G. S., Louisiana Guards (Rebel): Rappahannock Station, 7th November; died, Washington, 1st December, 1863.

Contributed by Assistant Surgeon H. Allen, U. S. Army.

See 1952, **V.** A. B. b. 3.

375. A conoidal ball, with the apex at first driven down into the body and afterward longitudinally grooved on one side
d. 199. by lodgement on the radius near the tuberosity, where it was discovered by the Nelaton probe. It had entered the middle of the forearm, Spottsylvania, 13th May.

Contributed by Assistant Surgeon J. Sim Smith, U. S. Army.

See **B″**.

456. A conoidal ball, laterally flattened. The side which was next the bone is comparatively smooth and retains a
d. 200. fragment, as if of fascia. The other surface shows the normal markings of the missile. Lodged in the middle third of the arm without fracturing the bone, Chancellorsville, 2d May, 1863.

Contributed by Surgeon Samuel Brillantowski, 41st New York.

2353. A conoidal ball, which has struck base first, the cupped portion
d. 201. being flattened over a diameter of nearly one and a third inches. *See figure* 176.

Private E. P. M., "K," 5th Alabama (Rebel). Extracted from the upper third of the right thigh.

Contributed by Acting Assistant Surgeon S. B. Hoppin.

FIG. 176. Front and side views of a conoidal ball flattened by striking base first. *Spec.* 2353.

2976. A conoidal ball, with a longitudinal half obliquely and roughly torn
d. 202. off and the opposite side of the cup rolled up outwardly upon itself.

Private A. B., "H," 19th Indiana: the right angle of the mouth slit, the upper surface of the tongue cut, the lower jaw fractured at its angle, Antietam, 17th September; the jaw became anchylosed with the teeth three-fifths of an inch apart; an inch of the angle came away, 30th October; ball extracted from behind the angle by Acting Assistant Surgeon Geo. F. French, Alexandria, 4th November, 1862.

Contributed by the operator.

2751. A conoidal ball, with two portions smoothly cut off the body and base at an obtuse angle to each other. A
d. 203. fragment of the lower ring stands out from the bottom of the cup.

Private C. C. C., "E," 39th Massachusetts: entered apex of the shoulder, Weldon R. R., 18th August; admitted hospital, Washington, 24th; extracted from the middle third, 31st August, 1864.

Contributed by Acting Assistant Surgeon Charles H. Bowen.

573. A conoidal ball, split longitudinally into two nearly equal parts from the apex to the base and pressed open so that
d. 204. the two surfaces are in the same plane. The weight of the missile is ℥j, ℥iij, gr. xxiv., and its greatest length two inches. It had passed through one man at Gettysburg and inflicted a deep flesh wound in the thigh of another, from whom it was extracted by Acting Assistant Surgeon B. B. Miles, Baltimore, a few days afterward See *Macleod's Notes*, p. 107.

Contributed by the operator.

See **B′**.

4427. A conoidal ball, with the base somewhat compressed and elongated.
d. 205. Private R. T., "C," 154th New York: entered between the tenth and eleventh ribs of the right side five inches from the spine, struck a small spicula off the tenth, passed under the fascia and lodged under the intercostal muscles opposite, one and a half inches above the point of entrance, Gettysburg, 1st July; admitted hospital, Baltimore, 11th; cut out, 10th October, 1863; wound healed; discharged for liability to subacute pleuritis on exposure.

Contributed by Surgeon C. W. Jones, U. S. Vols.

See **B′**.

4694. A conoidal ball, deeply grooved obliquely, with spiculæ of bone embedded and a large fragment of cloth attached.
d. 206. Private S. M., "D," 10th Pennsylvania Reserves.

Contributed by Acting Assistant Surgeon D. W. Rankin.

See **B′. B′.**

4429. A conoidal ball, flattened at the apex, a part of which is missing, compressed at the base and roughened on
d. 207. one side.

Sergeant A G. B., "I," 139th Pennsylvania: entered the right nates, on a line with the anus, to the depth of seven inches, Chancellorsville, 3d May; discovered between the tuberosity of the ischium and anus and an unsuccessful incision made, Philadelphia, 10th July; removed by another incision made through the rectum at the verge of the anus. Recovered without a fistula.

Contributed by Acting Assistant Surgeon L. K. Baldwin.

4487. A conoidal ball, slightly roughened, which entered the neck a little to the right of the trachea and one and a half
d. 208. inches above the sterno-clavicular articulation while the man was erect, and removed from over the body of the scapula three inches below its spine. An instance of circuitous travel by a conoidal ball.

Private L. W., "D," 68th New York: Second Bull Run, 30th August; extracted, 5th September, 1862. Discharged for fractured arm.

Contributed by Acting Assistant Surgeon S. E. Fuller.

See **B′**.

2678. A thin, irregular fragment of lead, one-half by one inch, considered a part of a percussion ball extracted from
d. 209. the right radio-carpal articulation three days after injury at Gettysburg.

Private R. B., "C," 12th U. S. Infantry.

Contributed by Assistant Surgeon E. de W. Breneman, U. S. Army.

1123. A conoidal ball, and the screw end of a ramrod. The missile, which is somewhat blunted
d. 210. at the apex, was firmly embedded in the sacrum, beyond the reach of forceps or ordinary instruments, and was extracted by the screw of a ramrod, as seen in the specimen, before Petersburg, 21st June, 1864. *See figure* 177.

Contributed by Surgeon S. F. Chapin, 139th Pennsylvania.

See **B′**.

FIG. 177. Conoidal ball extracted from sacrum by screw of ramrod. *Spec.* 1123.

1028. A small cylinder of polished iron, one and one-fourth inches in length, apparently a portion
d. 211. of a ramrod, removed from the foot.

Private J. S., "K," 1st Michigan Sharpshooters, 20: wounded head of the fibula, middle third of gastrocnemius, foot below the external malleolus; admitted hospital, Washington, 25th May; extracted 26th May; transferred to Michigan, 23d August, 1864.

Contributed by Surgeon N. R. Mosely, U. S. Vols.

See **B′ B′**.

4439. A conoidal ball, battered into an irregular sphere with two pieces of small iron nails from
d. 212. the shoe, which, with a piece of leather, were extracted from beneath the internal malleolus.

Private M. F., (Indian,) "E," 9th New York, 22: right calcis fractured and captured, date unknown; admitted hospital, Annapolis, 9th October, 1864; specimen extracted; recovered, without lameness.

Contributed by Acting Assistant Surgeon James Fischer.

See **B′ B′**.

3236. A triangular portion of a conoidal ball seven-eighths of an inch in its greatest length, extracted from the middle
d. 213. third of the thigh, and the iron back-spring and one brass side of a pocket knife which were driven in by the missile.

Private W. H. K., "E," 17th Maine, 24: a ball shattered two pocket knives, driving them into the thigh, Mine Run, 27th November; one hundred fragments of the knives and four of the ball were removed on the field; admitted hospital, Washington, 4th December; bullet extracted 14th; died of pyæmia, 22d December, 1863. After death seven fragments of brass, steel and bone from the knives were removed. The periosteum was detached for two and a fourth inches, thickened and inflamed.

Contributed by Acting Assistant Surgeon Jonathan Cass.

See 1985, **XIII.** A. B. a. 6.

See **B′. B′**.

4710. An elongated ball, somewhat roughened at the apex without material change of form. The missile fractured the
d. 214. eleventh and twelfth ribs on the right side and severed the spinal cord between the last dorsal and first lumbar vertebræ.

Private W. S. L., "C," 32d Iowa, 32: before Nashville, 10th December, 1864; died exhausted, 4th January, 1865.

Contributed by Assistant Surgeon S. C. Ayres, U. S. Vols.

See 717, **III.** A. B. b. 35.

For other illustrations, see 2523, **I.** A. A. c. 13; 2920, **I.** A. A. c. 16; 546, **I.** A. A. c. 24; 952, **I.** A. B. a. 9; 3131, **I.** A. B. b. 4; 3130, **I.** A. B. b. 6; 3553, **I.** A. B. b. 10; 2121, **I.** A. B. b. 12; 4075, **I.** A. B. b. 14; 3543, **I.** A. B. b. 17; 1727, **I.** A. B. b. 18; 2271, **I.** A. B. b. 25; 2539, **I.** A. B. b. 27; 1292, **I.** A. B. b. 36; 1297, **I.** A. B. b. 38; 1739, **I.** A. B. b. 49; 1267, **I.** A. B. b. 54; 276, **I.** A. B. b. 58; 3040, **I.** A. B. c. 19; 1293, **I.** A. B. d. 4; 139, **I.** A. B. d. 12; 216, **I.** A. B. d. 15; 3254, **I.** A. B. d. 16; 3358, **I.** A. B. d. 17; 685, **I.** A. B. d. 18; 3373, **I.** A. B. d. 20; 1108, **I.** A. B. d. 21; 3374, **II.** A. A. c. 3; 85, **II.** A. A. c. 6; 3350, **II.** A. B. a. 2; 2507, **II.** A. B. c. 5.

3458, **III.** A. A. a. 3; 3780, **III.** A. A. a. 4; 611, **III.** A. A. b. 1; 1331, **III.** A. A. b. 5; 2843, **III.** A. A. b. 6; 2238, **III.** A. A. b. 9; 3583, **III.** A. A. b. 10; 3810, **III.** A .A. b. 11; 1710, **III.** A. B. a. 2; 2762, **III.** A. B. a. 7; 1954, **III.** A. B. a. 9; 3515, **III.** A. B. a. 10; 3349, **III.** A. B. a. 14; 3171, **III.** A. B. a. 15; 1600, **III.** A. B. a. 16; 1630, **III.** A. B. a. 18; 901, **III.** A. B. a. 19; 3851, **III.** A. B. a. 20; 806, **III.** A. B. b. 4; 3985, **III.** A. B. b. 5; 3185, **III.** A. B. b. 8; 2204, **III.** A. B. b. 12; 3530, **III.** A. B. b. 14; 3030, **III.** A. B. b. 17; 1114, **III.** A. B. b. 18; 2939, **III.** A. B. b. 19; 4093, **III.** A. B. b. 20; 3523, **III.** A. B. b. 21; 3230, **III.** A. B. b. 23; 3796, **III.** A. B. b. 24; 1198, **III.** A. B. b. 26; 3984, **III.** A. B. b. 28; 757, **III.** A. B. b. 30; 2532, **III.** A. B. b. 31; 4083, **III.** A. B. b. 32; 2766, **III.** A. B. b. 33.

1141, **IV.** A. B. a. 1; 1561, **IV.** A. B. a. 7; 1210, **IV.** A. B. b. 1; 1211, **IV.** A. B. b. 15; 1073, **IV.** A. B. b. 25; 178, **IV.** A. B. b. 28; 636, **IV.** A. B. b. 29; 2294, **IV.** A. B. cy. 4; 794, **IV.** A. B. cy. 5.

2689, **V.** A. A. b. 1; 2986, **V.** A. A. b. 2; 1377, **V.** A. A. c. 1; 3386, **V.** A. A. c. 4; 2516, **V.** A. A. c. 14; 1715, **V.** A. A. c. 31; 1931, **V.** A. A. c. 40; 4126, **V.** A. A. d. 1; 2564, **V.** A. A. d. 16; 728, **V.** A. A. d, 18; 3681, **V.** A. B. b. 5; 3790, **V.** A. B. b. 14; 2696, **V.** A. B. b. 15; 1978, **V.** A. B. b. 17; 3919, **V.** A. B. b. 23; 1011, **V.** A. B. b. 38; 60, **V.** A. B. c. 9; 342, **V.** A. B. c. 16; 1206, **V.** A. B. c. 25; 1999, **V.** A. B. c. 28; 440, **V.** A. B. c. 34; 2599, **V.** A. B. c. 35; 3033, **V.** A. B. c. 62; 2363, **V.** A. B. c. 63; 3161, **V.** A. B. c. 65; 2712, **V.** A. B. c. 66; 620, **V.** A. B. c. 102; 2944, **V.** A. B. c. 105; 2625, **V.** A. B. c. 110; 3289, **V.** A. B. c. 127; 347, **V.** A. B. d. 12; 1226, **V.** A. B. d. 27; 2511, **V.** A. B. d. 32.

250, **VI.** A. a. b. 2; 4007, **VI.** A. a. b. 11; 3148, **VI.** A. a. c. 18; 4142, **VI.** A. a. d. 11; 2146, **VI.** A. a. e. 1; 3847, **VI.** A. a. e. 2; 486, **VI.** A. b. d. 18; 26, **VI.** A. b. d. 24; 1079, **VI.** A. b. d. 26; 2069, **VI.** A. b. d. 32; 1112, **VI.** A. b. e. 3; 1150, **VI.** A. b. e. 9.

100, **VII.** A. a. b. 10; 110, **VII.** A. a. b. 12; 1578, **VII.** A. a. e. 7; 2732, **VII.** A. a. e. 17; 2265, **VII.** A. b. b. 4; 2192, **VII.** A. b. b. 8; 1214, **VII.** A. b. d. 2; 2912, **VII.** A. b. d. 34; 4264, **VII.** A. b. f. 17; 180, **VII.** A. b. f. 63; 2264, **VII.** A. b. f. 89; 2868, **VII.** A. b. f. 92; 4123, **VII.** A. b. f. 106.

1152. **VIII.** A. a. c. 5; 1387, **VIII.** A. b. a. 2; 1252, **VIII.** A. b. b. 12; 2296, **VIII.** A. b. c. 8; 373, **VIII.** A. b. c. 11; 3157, **VIII.** A. b. c. 22; 1089, **VIII.** A. b. c. 29; 539, **VIII.** A. b. d. 18; 156, **VIII.** A. b. d. 22.

543, **IX.** A. b. b. 7; 2270, **IX.** A. b. f. 69; 2026, **IX.** A. b. f. 97.

2703, **X.** A. b. d. 8.

1743, **XI.** A. b. a. 3; 819, **XI.** A. b. a. 4; 1656, **XI.** A. b. b. 2; 2542, **XI.** A. b. b. 15; 4171, **XI.** A. b. b. 17; 1245, **XI.** A. b. b. 18; 172, **XI.** A. b. b. 21; 2902, **XI.** A. b. b. 26; 1246, **XI.** A. b. b. 27; 3212, **XI.** A. b. b. 28; 4130, **XI.** A. b. b. 29; 1641, **XI.** A. b. b. 30; 1794, **XI.** A. b. c. 1; 2214, **XI.** A. b. e. 3; 1795, **XI.** A. b. e. 4.

1285, **XII.** A. b. a. 1; 465, **XII.** A. b. a. 3; 3951, **XII.** A. b. a. 4; 545, **XII.** A. b. a. 5; 2374, **XII.** A. b. a. 6; 1661, **XII.** A. b. a. 10; 3931, **XII.** A. b. a. 11; 565, **XII.** A. b. a. 12; 3520, **XII.** A. b. a. 13; 2488, **XII.** A. b. a. 16; 2528, **XII.** A. b. a. 19; 86, **XII.** A. b. a. 20; 466, **XII.** A. b. a. 23; 1183, **XII.** A. b. b. 3; 1616, **XII.** A. b. b. 4; 1300, **XII.** A. b. b. 8; 598, **XII.** A. b. b. 9; 1291, **XII.** A. b. b. 10; 1908, **XII.** A. b. b. 13; 125, **XII.** A. b. b. 15; 3923, **XII.** A. b. b. 17; 1462, **XII.** A. b. b. 18; 3797, **XII.** A. b. b. 20; 1603, **XII.** A. b. b. 21; 2106, **XII.** A. b. b. 28; 4227, **XII.** A. b. b. 32; 3636, **XII.** A. b. b. 39; 3793, **XII.** A. b. b. 42; 3865, **XII.** A. b. b. 49; 622, **XII.** A. b. b. 53; 3205, **XII.** A. b. b. 54; 1410, **XII.** A. b. b. 55; 2170, **XII.** A. b. b. 56; 3864, **XII.** A. b. c. 6; 3049, **XII.** A. b. d. 6; 328, **XII.** A. b. d. 8; 3235, **XII.** A. b. d. 11; 4048, **XII.** A. b. d. 12; 3375, **XII.** A. b. d. 13; 153, **XII.** A. b. d. 16.

1470, **XIII.** A. a. b. 6; 2671, **XIII.** A. a. c. 1; 3055, **XIII.** A. a. d. 2; 405, **XIII.** A. a. d. 3; 4133, **XIII.** A. a. d. 4; 1362, **XIII.** A. a. d. 5; 1886, **XIII.** A. a. d. 7; 1413, **XIII.** A. a. d. 11; 2043, **XIII.** A. a. d. 13; 475, **XIII.** A. a. d. 20; 2039, **XIII.** A. a. d. 21; 4125, **XIII.** A. a. d. 22; 2966, **XIII.** A. a. d. 33; 3540, **XIII.** A. b. a. 20; 916, **XIII.** A. b. a. 21; 1788, **XIII.** A. b. a. 22; 1825, **XIII.** A. b. b. 5; 3670, **XIII.** A. b. b. 7; 702, **XIII.** A. b. b. 14; 1536, **XIII.** A. b. b. 33; 3267, **XIII.** A. b. b. 36; 3163, **XIII.** A. b. b. 41; 1338, **XIII.** A. b. b. 44; 1907, **XIII.** A. b. b. 52; 1322, **XIII.** A. b. b. 63; 238, **XIII.** A. b. b. 64; 2100, **XIII.** A. b. b. 75; 1811, **XIII.** A. b. b. 90; 1272, **XIII.** A. b. b. 94; 87, **XIII.** A. b. b. 98; 2839, **XIII.** A. b. b. 104; 1303, **XIII.** A. b. b. 105; 2911, **XIII.** A. b. b. 110; 2627, **XIII.** A. b. b. 114; 1258, **XIII.** A. b. b. 153; 2285, **XIII.** A. b. b. 159; 1810, **XIII.** A. b. b. 166; 1161, **XIII.** A. b. b. 181; 2848, **XIII.** A. b. b. 182; 3394, **XIII.** A. b. b. 189; 844, **XIII.** A. b. d. 1; 164, **XIII.** A. b. d. 5; 406, **XIII.** A. b. d. 6; 4069, **XIII.** A. b. d. 12; 1366, **XIII.** A. b. d. 15; 1427, **XIII.** A. b. d. 20; 2490, **XIII.** A. b. d. 22; 4163, **XIII.** A. b. d. 25; 2167, **XIII.** A. b. d. 39; 1499, **XIII.** A. b. d. 46; 4067, **XIII.** A. b. d. 51; 3875, **XIII.** A. b. d. 63; 1409, **XIII.** A. b. d. 69; 3779, **XIII.** A. b. e. 2; 3101, **XIII.** A. b. e. 6; 2091, **XIII.** A. b. e. 7; 1276, **XIII.** A. b. e. 19; 3545, **XIII.** A. b. f. 48; 2738, **XIII.** C. 5.

1360, **XIV.** A. a. a. 2; 1496, **XIV.** A. a. b. 2; 3936, **XIV.** A. a. e. 4; 3914, **XIV.** A. a. e. 6; 1746, **XIV.** A. a. e. 10; 105, **XIV.** A. a. e. 12; 3228, **XIV.** A. a. e. 14; 3924, **XIV.** A. a. e. 16; 1862, **XIV.** A. a. e. 17; 1144, **XIV.** A. a. e. 23; 4122, **XIV.** A. a. e. 29; 4136, **XIV.** A. a. e. 32; 4135, **XIV.** A. a. e. 35; 2856, **XIV.** A. a. e. 37; 3993, **XIV.** A. a. e. 46; 4383, **XIV.** A. a. e. 49; 2656, **XIV.** A. a. e. 70; 4039, **XIV.** A. a. e. 72; 3895, **XIV.** A. b. b. 7; 3999, **XIV.** A. b. b. 13; 3785, **XIV.** A. b. b. 20; 1950, **XIV.** A. b. b. 21; 356, **XIV.** A. b. b. 33; 1653, **XIV.** A. b. b. 35; 4233, **XIV.** A. b. b. 40; 1980, **XIV.** A. b. b. 46; 1948, **XIV.** A. b. b. 52; 3791, **XIV.** A. b. b. 61; 3175, **XIV.** A. b. b. 83; 4707, **XIV.** A. b. b. 84; 1473, **XIV.** A. b. c. 17; 936, **XIV.** A. b. c. 22; 1956, **XIV.** A. b. d. 4; 1482, **XIV.** A. b. f. 7; 3944, **XIV.** A. b. f. 9; 1433, **XIV.** A. b. f. 19; 1243, **XIV.** A. b. f. 28; 3043, **XIV.** A. b. f. 29; 353, **XIV.** A. b. f. 40; 1699, **XIV.** A. b. f. 41; 3977, **XIV.** A. b. f 54; 4063, **XIV.** A. b. f. 63; 2652, **XIV.** A. b. f. 69; 3911, **XIV.** A. b. f. 71; 51, **XIV.** A. b. f. 74; 469, **XIV.** A. b. f. 78; 2276, **XIV.** A. b. f. 82; 3424, **XIV.** A. b. f. 83; 47, **XIV.** A. b. f. 85; 1490, **XIV.** A. b. f. 87; 1481, **XIV.** A. b. f. 88; 1191, **XIV.** A. b. f. 89; 1601, **XIV.** A. b. f. 94; 1882, **XIV.** A. b. f. 112; 3947, **XIV.** A. b. f. 113; 3296, **XIV.** A. b. f. 120; 323, **XIV.** A. b. f. 132; 4104, **XIV.** A. b. f. 133; 2272, **XIV.** A. b. f. 141; 2499, **XIV.** A. b. f. 167; 1081, **XIV.** A. b. f. 168; 4077, **XIV.** A. b. f. 179; 2449, **XIV.** A. b. f. 185; 3987, **XIV.** A. b. f. 186; 4215, **XIV.** A. b. f. 187; 147, **XIV.** A. b. f. 189; 460, **XIV.** A. b. f. 191; 1994, **XIV.** A. b. f. 193; 2555, **XIV.** A. b. f. 195; 4058, **XIV.** A. b. f. 200; 4071, **XIV.** A. b. f. 202; 141, **XIV.** A. b. f. 203; 661, **XIV.** A. b. f. 204; 3064, **XIV.** A. b. f. 209; 3016, **XIV.** A. b. f. 219; 3070, **XIV.** A. b. f. 229; 2349, **XIV.** A. b. g. 3.

1307, **XV.** A. a. c. 4; 4146, **XV.** A. a. c. 7; 490, **XV.** A. a. d. 1; 3245, **XV.** A. a. d. 2; 4156, **XV.** A. a. d. 17; 4497, **XV.** A. a. d. 33; 2187, **XV.** A. b. a. 6; 624, **XV.** A. b. b. 16; 1249, **XV.** A. b. b. 23; 1270, **XV.** A. b. b. 26; 3382, **XV.** A. b. d. 9; 270, **XV.** A. b. d. 47; 1695, **XV.** A. b. d. 65; 3273, **XV.** A. b. d. 76; 716, **XV.** A. b. d. 108; 4703, **XV.** A. b. d. 110; 500, **XV.** A. b. d. 118.

828, **XVI.** A. A. d. 3; 4578, **XVI.** A. A. e. 25; 2827, **XVI.** A. B. a. 1; 2339, **XVI.** A. B. b. 8; 3899, **XVI.** A. B. b. 11; 3702, **XVI.** A. B. b. 12; 1799, **XVI.** A. B. b. 23; 2188, **XVI.** A. B. b. 31; 2983, **XVI.** A. B. e. 6; 4054, **XVI.** A. B. f. 20; 3285, **XVI.** A. B. f. 21; 1173, **XVI.** A. B. f. 33; 1548, **XVI.** A. B. f. 36; 3356, **XVI.** A. B. f. 58; 263, **XVI.** A. B. f. 83; 2062, **XVI.** A. B. f. 88; 1544, **XVI.** A. B. f. 106; 4103, **XVI.** A. B. f. 113; 1712, **XVI.** A. B. f. 124; 4229, **XVI.** A. B. f. 128; 3475, **XVI.** A. B. f. 146; 3740, **XVI.** A. B. f. 165; 3204, **XVI.** A. B. f. 180; 785, **XVI.** A. B. g. 2.

1440, **XIX.** A. B. a. 1; 2117, **XIX.** A. B. a. 5; 960, **XIX.** A. B. a. 14; 1678, **XIX.** A. B. a. 28; 910, **XIX.** A. B. a. 38.

2425, **XX.** A. B. a. 7; 1735, **XX.** A. B. a. 9.

684, **XXI.** A. B. a. 4.

1449, **XXII.** A. B. a. 14; 1899, **XXII.** A. B. c. 15; 3407, **XXII.** A. B. c. 19.

C. Other Varieties. { a. Types unused. b. Types after use. c. Removed by operation.

a. Types Unused.

4593. A 1-pounder hand grenade, Ketchum's.
a. 1. From U. S. Ordnance Department.

572. A small quantity of composition, contents of a fire ball used by the Rebels and captured on Morris Island. The
a. 2. specimen is believed to be a mixture of nitre, sulphur and antimony, and when used is made into a paste with sand and rosin. The missile was wrapped on the outside with three layers of heavy canvas, tarred and pitched without, with a net work of twine over it. The bottom was cast-iron covered only with pitch; within the ball was a tin cup to which the canvas and twine were fastened, and which contained the composition, and near the base was embedded a 6-pounder shell. Three pins in the top are withdrawn before loading in the gun, to allow ignition previous to its exit from the muzzle. The composition burns slowly with intense heat. The missile was designed to be thrown from a mortar.
Contributed by Acting Assistant Surgeon H. K. Neff.

2569. A bridge torpedo, McCallum's, designed to be placed in an auger hole in a beam.
a. 3.

B′. List of Cases where the course of the projectile or its time of lodgement is remarkable.

1440, **XIX.** A. B. a. 1; 2013, **XXII.** A. B. a. 8; 1879, **XXII.** A. B. c. 1; 4509, **XXVII.** B. A. c. 5; 4513, **XXVII.** B. A. c. 12; 4503, **XXVII.** B. A. c. 16; 4488, **XXVII.** B. B. c. 13; 2971, **XXVII.** B. B. c. 16; 4542, **XXVII.** B. B. c. 17; 4553, **XXVII.** B. B. c. 22; 4522, **XXVII.** B. B. c. 24; 4622, **XXVII.** B. B. c. 28; 1095, **XXVII.** B. B. c. 29; 4535, **XXVII.** B. B. c. 35; 3146, **XXVII.** B. B. c. 42; 4532, **XXVII.** B. B. c. 46; 4530, **XXVII.** B. B. c. 54; 4520, **XXVII.** B. B. c. 56; 4527, **XXVII.** B. B. c. 59; 4473, **XXVII.** B. B. d. 6; 3140, **XXVII.** B. B. d. 12; 295, **XXVII.** B. B. d. 18; 2432, **XXVII.** B. B. d. 22; 4570, **XXVII.** B. B. d. 26; 4435, **XXVII.** B. B. d. 33; 4424, **XXVII.** B. B. d. 38; 4479, **XXVII.** B. B. d. 39; 378, **XXVII.** B. B. d. 54; 1027, **XXVII.** B. B. d. 79; 4558, **XXVII.** B. B. d. 101; 4715, **XXVII.** B. B. d. 114; 3192, **XXVII.** B. B. d. 117; 4563, **XXVII.** B. B. d. 120; 1547, **XXVII.** B. B. d. 132; 1422, **XXVII.** B. B. d. 134; 941, **XXVII.** B. B. d. 139; 4626, **XXVII.** B. B. d. 153; 4403, **XXVII.** B. B. d. 164; 4470, **XXVII.** B. B. d. 166; 3076, **XXVII.** B. B. d. 176; 4573, **XXVII.** B. B. d. 179; 1569, **XXVII.** B. B. d. 184; 2771, **XXVII.** B. B. d. 188; 2241, **XXVII.** B. B. d. 194; 573, **XXVII.** B. B. d. 204; 4427, **XXVII.** B. B. d. 205; 4487 **XXVII.** B. B. d. 208; 1123, **XXVII.** B. B. d. 210.

B′. List of Cases illustrating the value of the Nelaton Probe.

1956, **XIV.** A. B. d. 4; 4280, **XXVII.** B. A. c. 13; 3153, **XXVII.** B. B. c. 26; 1095, **XXVII.** B. B. c. 29; 3293, **XXVII.** B. B. c. 31; 3400, **XXVII.** B. B. c. 63; 520, **XXVII.** B. B. d. 92; 4558, **XXVII.** B. B. d. 101; 4279, **XXVII.** B. B. d. 189; 2241, **XXVII.** B. B. d. 194; 375, **XXVII.** B. B. d. 199.

B′. B′. List of Cases where an unusual foreign body has been introduced.

See 617, **IV.** A. B. b. 33; 2696, **V.** A. B. b. 15; 4265, **VII.** A. B. f. 18; 1245, **XI.** A. B. b. 18; 186, **XIII.** A. B. d. 16; 1157, **XVI.** A. B. b. 13; 1548, **XVI.** A. B. f. 36; 2674, **XVIII. II.** A. B. b. 9; 962, **XIX.** A. B. a. 30; 3990, **XIX.** A. B. a. 34; 616, **XIX.** A. B. a. 39; 4629, **XXVI.** A 3, 138; 4151, **XXVII.** B. B. c. 36; 4417, **XXVII.** B. B. c. 62; 3400, **XXVII.** B. B. c. 63; 246, **XXVII.** B. B. c. 64; 4565, **XXVII.** B. B. d. 31; 2651, **XXVII.** B. B. d. 74; 3191, **XXVII.** B. B. d. 126; 664, **XXVII.** B. B. d. 148; 4694, **XXVII.** B. B. d. 206; 1028, **XXVII.** B. B. d. 211; 4439, **XXVII.** B. B. d. 212; 3236, **XXVII.** B. B. d. 213.

C. Missiles other than for Firearms. { A. Types and Uninjured Specimens. B. Removed by Operation.

A. Types and Uninjured Specimens.

4614. A. 1. A hickory arrow, two feet in length, used by the Indians of Minnesota for killing small birds and by the boys for practice. It is stained red and is quite blunt, being rectangular at the head. From Fort Ridgely.
Contributed by Acting Assistant Surgeon Alfred Müller.

4615. A. 2. A hickory arrow, two feet in length, with the head drawn out spike-shaped and stained red. It is used for killing the smaller birds and by the Indian boys for practice. From Fort Ridgely.
Contributed by Acting Assistant Surgeon Alfred Müller.

4443. A. 3. A Yankton arrow, (Upper Sioux,) also used by the Lower Sioux. "In consequence of the constant intercourse of the different tribes of the Lower and Upper Sioux Indians, no specific character is found in the arrows used by the several tribes, although the Yanktons and Sisitons (Upper Sioux) prepare theirs in preference with yellow colored feathers." The shaft is about twenty-two inches long and one-fourth of an inch in diameter. From about three inches from the extremity three irregular longitudinal grooves run down to the feathers. These grooves are possibly to permit the escape of blood, so that the wounded animal may be tracked. Beyond that they have no known significance. The feathered portion is between nine and ten inches. The arrow-head is of iron and spear-shaped, being in this specimen one inch broad at the base and nearly two inches long. The edges of the head are grooved and somewhat sharpened. The head is held in a cleft of the shaft by means of tendinous bands that loosen when long moistened by the blood of the stricken prey. Other arrow-heads used by the Sioux vary from this size to that of a breadth of five-eighths of an inch by a length of nearly four inches. For other illustrations, see seven succeeding specimens.
Contributed by Acting Assistant Surgeon Alfred Müller.

2589. A Yankton or Sisiton (Upper Sioux) arrow. The yellow color of the inner side of the feather is characteristic.
A. 4. Contributed by Acting Assistant Surgeon Alfred Müller.
See 4443, **XXVII.** C. A. 3.

2725. A variety of the Upper Sioux arrows.
A. 5. Contributed by Acting Assistant Surgeon Alfred Müller.
See 4443, **XXVII.** C. A. 3.

2754. An Upper Sioux arrow, adopted by the Lower Sioux.
A. 6. Contributed by Acting Assistant Surgeon Alfred Müller.
See 4443, **XXVII.** C. A. 3.

2796. A Lower Sioux arrow.
A. 7. Contributed by Acting Assistant Surgeon Alfred Müller.
See 4443, **XXVII.** C. A. 3.

2825. A Sioux arrow, the particular designation of which has been mislaid. It does not, however, differ materially from
A. 8. the others.
Contributed by Acting Assistant Surgeon Alfred Müller.
See 4443, **XXVII.** C. A. 3.

2855. A Lower Sioux arrow. This specimen bears marks of service.
A. 9. Contributed by Acting Assistant Surgeon Alfred Müller.
See 4443, **XXVII.** C. A. 3.

4391. A war arrow, from which the head is wanting, used by all the Sioux. The head was glued to the shaft in order
A. 10. to remain in the wound.
Contributed by Acting Assistant Surgeon Alfred Müller.
See 4443, **XXVII.** C. A. 3.

4445. Three Navajo arrows, which do not materially differ from the last eight specimens, except in being of slightly
A. 11. shorter shafts and smaller heads.
Contributed by Surgeon B. A. Clements, U. S. Army.

1577. A stone arrow-head, used by the Apache Indians of Arizona. It is irregularly triangular, three-fourths of an inch
A. 12. in its greatest length and one-third in its greatest width, and has two notches as barbs on each of its long sides.
Contributed by Assistant Surgeon E. Coues, U. S. Army.

3151. Two unused Upper Sioux arrows, from the neighborhood of Fort Wadsworth, D. T. The iron heads are
A. 13. undoubtedly of civilized manufacture, introduced among the Indians by traders.
Contributed by Brevet Major John S. Billings, Assistant Surgeon, U. S. Army.

B. Removed by Operation.

4453. An iron Indian arrow-head.
B. 1. Contributed by Acting Assistant Surgeon Alfred Müller.

4442. An arrow of the Lower Sioux, extracted from the face.
B. 2. F. Q., Indian Interpreter, killed 18th August, 1862.
Contributed by Acting Assistant Surgeon Alfred Müller.

4454. An iron arrow-head, which had been embedded one inch in the ilium.
B. 3. It is three inches in its extreme length and half an inch in its widest part, and is neither distorted nor disfigured.
Extracted and contributed by Assistant Surgeon B. A. Clements, U. S. Army.

4455. An iron arrow-head, removed from the scapula at the base of the spine.
B. 4. The missile, which is two inches in length and half an inch wide at the base, was greatly bent upon itself by the force of its impact. *See figure* 178.
Private ——, 5th U. S. Infantry: entered just above the posterior fold of the axilla; the shaft separated with the slightest traction; probing to the depth of two and a half inches failed to reveal it; after waiting three months, it was discovered, after an extensive T incision, and extracted by Assistant Surgeon B. A. Clements, U. S. Army, Fort Fauntleroy, N. M., 1861.
Contributed by the operator.

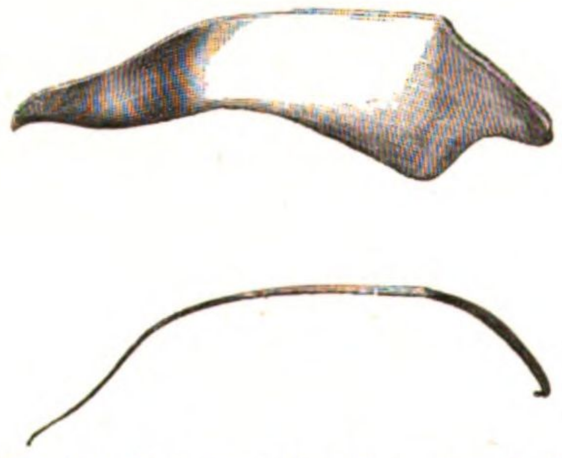

FIG. 178. Two views of an iron arrow head removed from scapula. *Spec.* 4455.

XXVIII. MODELS PERTAINING TO MATERIA CHIRURGICA.

A. Means of Transportation of the Wounded

B. Surgical Equipment.
- A. Instruments.
- B. Supplies.

C. Prothetic Apparatus.

XXVIII. MATERIA CHIRURGICA.

A. Means of Transportation.

4559. A full-sized plain litter, made of canvas tacked to a wooden frame without legs.

2685. A full-sized Halstead hand-litter, folding longitudinally, in general use during the Rebellion. Also a small model of the same.

248. Five miniature models of the ordinary hand-litter, in general use during the latter part of the Rebellion.

4673. A full-sized litter, in which the canvas is in three pieces and the legs and braces are attached to but one of the wooden poles. Not in general use.

4674. A full-sized heavy stretcher, in which the body is constructed of straps permanently attached to one pole and fastened by buckles to the other. Not in use.

2457. A horse-litter, made of canvas, supported by heavy oaken poles and carried between two horses. Little used.

2495. Two cacolets, designed to be fastened to a pack saddle, for the transportation of the wounded. Not used.

4668. A model of the old two-wheeled ambulance in use at the beginning of the Rebellion. In this specimen the top has been made very largely out of proportion.

See 2514, **XXVIII.** A.

2514. A model to show the means employed to arrange the beds in the old two-wheeled ambulances into inclined planes.

See 4668, **XXVIII.** A.

4669. A model of the ordinary four-wheeled ambulance in general use during the Rebellion.

4670. A model of the Rucker pattern of four-wheeled ambulance, recommended for adoption in 1865.

4560. A can of condensed egg and one of condensed beef, being a part of the supplies carried by the ambulances in the field.

See class **XXVIII.** B. B.

4672. A model of the Tompkins wheeled stretcher. This has been recommended for adoption in the Army.

4698. An iron frame work designed to support a wounded man, either in hospital or during transportation.

B. Surgical Equipment. { A. Instruments. B. Supplies.

A. INSTRUMENTS.

1906. A pocket case of instruments, of the standard issued by the Medical Department.

1934. A case of instruments for minor operations, of the standard issued by the Medical Department.
A. 2.

1983. A case of instruments for capital operations, of the standard issued by the Medical Department.
A. 3.

1986. A case of dissecting instruments, of the standard issued by the Medical Department.
A. 4.

1988. A case of obstetrical instruments, of the standard issued by the Medical Department.
A. 5.

1400. A case of teeth extracting instruments, of the standard issued by the Medical Department.
A. 6.

2095. A case of instruments for operations upon the eye and ear, of the standard issued by the Medical Department.
A. 7.

1467. A small general operating case, one of the patterns issued during the Rebellion.
A. 8. Hernstein, maker, New York.

1456. A general operating case, one of the patterns issued during the Rebellion.
A. 9. Hernstein, maker, New York.

1511. A small trephining case, one of the patterns issued by the Medical Department
A. 10.

1492. A trephining case.
A. 11.

1475. An amputating case, issued by the Medical Department in the Mexican war.
A. 12. Tiemann, maker, New York.

1681. A sample pocket case of instruments.
A. 13. Kolbe, maker.

1583. A sample general operating case.
A. 14. Kolbe, maker.

1652. A sample case of amputating instruments.
A. 15. Kolbe, maker.

1632. A sample case of resection instruments.
A. 16. Kolbe, maker.

1576. A sample case of bougies and catheters.
A. 17. Kolbe, maker.

1533. A sample case for aural operations.
A. 18. Kolbe, maker.

1455. A field operating case. One of the patterns issued during the Rebellion
A. 19.

1398. A general operating case, to be carried on the saddle.
A. 20. Snowden & Bro., makers, Philadelphia.

1446. A sample case of silver catheters.
A. 21. Tiemann, maker, New York.

1438. A stomach pump and injecting apparatus.
A. 22. Hernstein, maker, New York.

1435. An otoscope in case.
A. 23.

2169. A laryngoscope.
A. 24.

2245. An opthalmoscope.
A. 25.

1259. A sphygmograph.
A. 26.

1320. A trocar and canula, for puncture of the bladder by the rectum.
A. 27.

4499. A hypodermic syringe, of the pattern issued by the Medical Department.
A. 28.

4495. A case for local anæsthesia and diagnosis, containing a nebulizer, a thermometer and a urinometer, of the pattern
A. 29. issued by the Medical Department.

4718. An electrical apparatus, of the pattern issued by the Medical Department.
A. 30.

2332. Hulihen's apparatus, for washing the ear.
A. 31.

2292. A collection of tourniquets.
A. 32.

2359. Serre-fines.
A. 33.

2621. A collection of specula.
A. 34.

2366. An india-rubber tube, for the use of patients with irritable bladder.
A. 35.

1396. An instrument for the volatilization of liquids by heat, after the manner of Hero's wheel, with a duplicate flask.
A. 36. (Outwater's patent.)

1432. Richardson's ether spray apparatus.
A. 37.

1445. A nebulizer, for ether or rhigolene, with bottle. To be used by hand.
A. 38. Codman and Shurtleff, makers, Boston.

2378. An atomizer, for volatile liquids, operated by steam.
A. 39. Codman and Shurtleff makers.

4680. A bone drill, invented and contributed by Assistant Surgeon B. Howard, U. S. Army.
A. 40.

1428. An instrument for the operation by invagination for the radical cure of reducible hernia.
A. 41. Invented and presented by Medical Inspector G. T. Allen, U. S. Army.

2453. A wire spring for draining abscesses.
A. 42. Designed and contributed by Acting Assistant Surgeon George K. Smith.

3031. A double-bulbed nebulizer for producing local anæsthesia, in which the ether spray escapes by two converging jets.
A. 43. Tiemann and Co., makers, New York.

3036. A compressor, for the arrest of the abdominal aortic circulation, after the pattern of Tiemann.
A. 44.

3061. An arterial compressor, after the pattern of Signorini, as manufactured by Tiemann.
A. 45.

1375. A twelve-bladed scarificator.
A. 46.

1389. A double stethoscope (Camarann's).
A. 47.

2291. An œsophageal probang.
A. 48.

4666. An irrigator, for dressing wounds.
A. 49.

4717. A colpeurynter.
A. 50.

4704. A Crosby fracture bed, used in the United States Army Hospitals.
A. 51.

3795. A box of assorted carved wooden splints.
A. 52.

4708. A set of wire anterior splints. N. P. Smith's pattern.
A. 53.

4709. A model of Buck's fracture apparatus.
A. 54.

4714. A model of Hodgen's fracture apparatus.
A. 55.

B. Supplies.

4449. A medicine case, or companion, containing dressings and medicines, designed to be carried by an orderly.
B. 1. Squibb's pattern.

4448. A medicine field case, or companion, containing dressings and medicines, designed to be carried by an orderly.
B. 2. Maris & Co's. pattern.

4450. A surgical field case, in two parts, containing dressings and medicines, and designed to be carried by one or two
B. 3. orderlies. Chapin's pattern.

4444. Two specimens of the hospital knapsack, containing dressings and designed to be carried by an orderly, accom-
B. 4. panying the medical officer.

4451. Squibb's pattern of field chest, containing medicines and dressings.
B. 5. This is the model upon which were made the majority of the medicine cases issued to troops in the field.

4446. Dunton's field case of medicines and dressings, in two parts, designed to be slung and carried as panniers.
B. 6.

4447. A pair of medicine panniers containing a field supply of medicines and dressings, designed to be carried across a
B. 7. horse. The cases are of tin, slung in leather. Chapin's pattern.

4452. Dunton's field case of medicines and dressings, in three parts, with pack-saddle.
B. 8.

4671. A model of the Perot pattern of medicine wagon. This was one of the styles used for the transportation of medical
B. 9. supplies.

For convenience of exhibition this is placed with the ambulances.

See class **XXVIII.** A.

For other illustrations, see 4560, **XXVIII.** A.

C. Prothetic Apparatus.

4675. Model of Gildea's artificial forearm and hand, and of the four fingers. These patterns have been furnished disabled
C. 1. soldiers by U. S. Government.

2427. A small model of an artificial leg. Maker unknown.
C. 2.

4677. A model of an adjustable steel skeleton leg, for all amputations of thigh, leg or foot, with a description.
C. 3. Contributed by Dr. Alex. Watson, late Surgeon and Brevet Lieutenant Colonel, U. S. Volunteers.

4679. A model of the Selpho artificial leg. This pattern has been furnished disabled soldiers by U. S Government.
C. 4.

4678. Two models of the Bly artificial leg. This pattern has been furnished disabled soldiers by U. S. Government.
C. 5.

4676. Four models of the Salem leg, for amputations below or above the knee. A drawing mounted on rollers and a
C. 6. descriptive pamphlet accompanying them. This pattern has been furnished disabled soldiers by U. S. Government.

2444. A model of an artificial leg. Maker unknown.
C. 7.

4681. An assortment of artificial eyes.
C. 8. Contributed by Mr. Chadwick.

3480. Two artificial legs, for amputation above the knee. Maker unknown.
C. 9.

XXIX. MISCELLANEOUS ARTICLES, CHIEFLY INTERESTING AS CURIOSITIES.

XXIX. MISCELLANEOUS.

1900. A wounded Enfield rifle from the battle field of Gettysburg. The stock has been carried away by a missile opposite the rear sight, and the under surface of the barrel is bruised near by. The stock is also fractured higher up. The rammer, partly withdrawn, is held bent.

Contributed by Brigadier General George D. Ramsay, Chief of Ordnance, U. S. Army.

1902. A wounded Harper's Ferry musket from the battle field of Gettysburg. The barrel is pierced in two places near the upper bands, as if by fragments of shell, and the muzzle is a little torn. The stock is somewhat splintered in its upper part. The piece bears the private mark J. M. U. on the breech.

Contributed by Brigadier General George D. Ramsay, Chief of Ordnance, U. S. Army.

1818. A wounded Springfield rifled-musket from the battle field of Gettysburg. A leaden ball has carried away the upper extremity of the stock and is embedded in the barrel, which is compressed, slightly ruptured, and moderately deflected. The piece bears the private mark W. on the stock near the lock.

Contributed by Brigadier General George D. Ramsay, Chief of Ordnance, U. S. Army.

4691. A right boot, showing the wounds of entrance and exit of a bullet passing nearly transversely through the middle of the foot.

Captain D. C., "D," 122d New York: near Fort Stevens, (Washington), 12th July, 1864.

4682. A rude crutch, made from a forked branch by a wounded soldier on the Wilderness battle field and brought by him to Douglas U. S. Army General Hospital, Washington.

Contributed by Assistant Surgeon W. Thomson, U. S. Army.

4690. A rudely fashioned strap, two inches wide, made of army cloth and fastened with two buckles, which was successfully used by a malingerer to induce atrophy of the right leg.

Private Ira A. Davidson, "E," 13th Connecticut: at Knight U. S. Army General Hospital, New Haven, Conn.

Contributed by Surgeon P. A. Jewett, U. S. Vols.

4683. A fragment of wood from the wreck of the rebel iron-clad steamer *Merrimac*.

4686. Eighteen grizzly bears' claws, from the Navajo Indians.

4688. A necklace of twenty-one finger nails, being trophies taken in battle from the Navajo Indians and ornamented with bead-work and worn by the Utes.

Contributed by Surgeon B. A. Clements, U. S. Army.

4687. An Apache necklace of twenty-nine finger nails, from trophies taken in battle, ornamented with bead-work.

Contributed by Surgeon B. A. Clements, U. S. Army.

4685. The scalp of a Navajo, being the trophy of a Ute Indian. This specimen is a very fine one. The hair is two feet long and very thick. The scalp is ornamented with beads for six inches square.

Contributed by Surgeon B. A. Clements, U. S. Army.

4689. A Navajo necklace of the lower jaw and teeth, ornamented with bead-work, taken from enemies slain in battle.

4684. Two pairs of Sioux moccasons, ornamented with red, white and green beads.

4696. A part of the upper extremity of the right femur, encrusted with a fossilizing stone-like material to the thickness of an eighth of an inch. The head and part of the neck are wanting, at the place of whose fracture the structure of the bone, which is apparently from an old subject and is certainly an ancient specimen, is seen.

From a cave in Lower California.

Contributor and history unknown.

2543. One foot of submarine telegraph cable. It is made of copper wire, coated with gutta-percha, cased in tarred rope and spirally wrapped with twelve strands of iron wire in one layer. Believed to have been laid by the Rebels between forts Gregg and Sumter and Charleston, and to have been contributed by Acting Assistant Surgeon H. K. Neff.

For other illustrations, see 302, **XXII.** B. A. c. 3.

XXX. INJURIES AND DISEASES OF THE LOWER ANIMALS.

XXX. LOWER ANIMALS.

3120. The cranium of a horse, killed in the battle of Antietam. A bullet entered the right frontal bone at its junction with the nasal. The orifice of entrance is regular and the bone is slightly bevelled internally. In its passage posteriorly, the missile has produced great comminution of the ethmoid and lesser wing of the sphenoid.
Contributed by Hospital Steward A. J. Schafhirt.

3137. The cranium of a rabid dog, killed by a small conoidal pistol ball which entered at the junction of the right temporal and parietal bones immediately above the condyle of the lower jaw. One fissure passed back to the occipital bone and another forward to the superior orbital process of the frontal. The missile is attached.
Contributed by Assistant Surgeon J. B. Stone, U. S. Vols.

3169. The left humerus of a common goose, after fracture in the middle third by the bite of a dog. Union has occurred by new bone formation over a transverse interspace of an inch and a half.
Contributed by Hospital Steward A. J. Schafhirt.

3422. The phalanx of an ox, exhibiting an exostosis over its lower two thirds, large in volume and spongy in character.
Contributed by Surgeon Robert Wm. Pounds.

3249. A part of the inferior maxilla of a South Devon bull, three and a half years old, upon the left ramus of which is developed a large osteo-sarcomatous tumor of six months' growth. "The animal became thin in flesh soon after the tumor made its appearance, and remained so till he was killed." It is supposed to be the same disease that is known by the New England farmers as "Wolf."
Contributed by Dr. C. H. Nichols, Superintendent Government Hospital for the Insane.
See 3275 *and* 3281, *following, from the same case.*

3275. A lymphatic gland from the left side of the neck of a bull, killed for osteo-sarcoma of the lower jaw.
Contributed by Dr. C. H. Nichols.
See 3249, *above.*

3281. The parotid gland from the left side of a bull, killed on account osteo-sarcoma of the lower jaw.
Contributed by Dr. C. H. Nichols.
See 3249, *above.*

NOTE.—The number of specimens retained in the Surgical Section and described in this Catalogue is 4719. The discrepancy between this total and that given on page 3, Circular 6, Surgeon General's office, 1865, results from discarding many preparations of no intrinsic interest on account of imperfections in their histories.

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10	101	**65**	272	**120**	345	**175**	534	**230**	227	**285**	306	**340**	121	**395**	151
11	281	**66**	122	**121**	351	**176**	593	**231**	215	**286**	75	**341**	159	**396**	282
12	125	**67**	291	**122**	47	**177**	256	**232**	605	**287**	342	**342**	99	**397**	275
13	428	**68**	106	**123**	92	**178**	76	**233**	279	**288**	548	**343**	156	**398**	403
14	98	**69**	185	**124**	132	**179**	372	**234**	96	**289**	537	**344**	375	**399**	148
15	153	**70**	152	**125**	239	**180**	168	**235**	34	**290**	418	**345**	386	**400**	244
16	171	**71**	233	**126**	260	**181**	153	**236**	21	**291**	259	**346**	407	**401**	172
17	104	**72**	153	**127**	358	**182**	163	**237**	335	**292**	326	**347**	113	**402**	427
18	133	**73**	129	**128**	312	**183**	11	**238**	268	**293**	596	**348**	406	**403**	555
19	245	**74**	374	**129**	127	**184**	286	**239**	97	**294**	555	**349**	564	**404**	615
20	406	**75**	288	**130**	36	**185**	106	**240**	264	**295**	599	**350**	168	**405**	254
21	407	**76**	352	**131**	25	**186**	284	**241**	542	**296**	422	**351**	158	**406**	283
22	386	**77**	360	**132**	166	**187**	289	**242**	329	**297**	331	**352**	210	**407**	191
23	354	**78**	113	**133**	205	**188**	211	**243**	205	**298**	181	**353**	341	**408**	303
24	10	**79**	394	**134**	260	**189**	105	**244**	277	**299**	482	**354**	331	**409**	408
25	148	**80**	418	**135**	217	**190**	100	**245**	78	**300**	66	**355**	324	**410**	14
26	130	**81**	248	**136**	426	**191**	431	**246**	596	**301**	513	**356**	327	**411**	14
27	279	**82**	202	**137**	80	**192**	169	**247**	541	**302**	513	**357**	545	**412**	396
28	206	**83**	287	**138**	319	**193**	570	**248**	625	**303**	422	**358**	264	**413**	49
29	170	**84**	247	**139**	27	**194**	157	**249**	253	**304**	249	**359**	197	**414**	132
30	285	**85**	47	**140**	260	**195**	384	**250**	119	**305**	271	**360**	344	**415**	81
31	284	**86**	236	**141**	358	**196**	149	**251**	442	**306**	134	**361**	167	**416**	544
32	283	**87**	272	**142**	137	**197**	172	**252**	307	**307**	540	**362**	543	**417**	554
33	240	**88**	492	**143**	294	**198**	104	**253**	418	**308**	534	**363**	429	**418**	149
34	76	**89**	218	**144**	308	**199**	282	**254**	438	**309**	73	**364**	428	**419**	37
35	205	**90**	353	**145**	127	**200**	361	**255**	269	**310**	298	**365**	285	**420**	405
36	535	**91**	494	**146**	127	**201**	361	**256**	355	**311**	264	**366**	393	**421**	225
37	555	**92**	254	**147**	356	**202**	159	**257**	416	**312**	134	**367**	550	**422**	5
38	383	**93**	92	**148**	63	**203**	395	**258**	397	**313**	371	**368**	172	**423**	302
39	353	**94**	103	**149**	67	**204**	395	**259**	86	**314**	414	**369**	284	**424**	441
40	344	**95**	13	**150**	67	**205**	173	**260**	502	**315**	87	**370**	271	**425**	291
41	351	**96**	546	**151**	293	**206**	395	**261**	22	**316**	380	**371**	185	**426**	291
42	355	**97**	440	**152**	116	**207**	504	**262**	337	**317**	377	**372**	79	**427**	191
43	431	**98**	206	**153**	246	**208**	567	**263**	430	**318**	172	**373**	184	**428**	396
44	542	**99**	527	**154**	123	**209**	614	**264**	201	**319**	353	**374**	243	**429**	402
45	130	**100**	144	**155**	111	**210**	413	**265**	564	**320**	179	**375**	616	**430**	13
46	392	**101**	116	**156**	189	**211**	235	**266**	564	**321**	387	**376**	331	**431**	225
47	345	**102**	153	**157**	205	**212**	387	**267**	112	**322**	173	**377**	380	**432**	229
48	320	**103**	375	**158**	343	**213**	276	**268**	562	**323**	350	**378**	602	**433**	174
49	210	**104**	403	**159**	151	**214**	441	**269**	170	**324**	27	**379**	288	**434**	133
50	347	**105**	316	**160**	129	**215**	544	**270**	388	**325**	99	**380**	265	**435**	154
51	344	**106**	307	**161**	26	**216**	27	**271**	145	**326**	430	**381**	129	**436**	286
52	285	**107**	305	**162**	353	**217**	207	**272**	188	**327**	154	**382**	110	**437**	199
53	438	**108**	304	**163**	130	**218**	191	**273**	129	**328**	245	**383**	547	**438**	216
54	439	**109**	306	**164**	283	**219**	130	**274**	358	**329**	244	**384**	538	**439**	425
55	424	**110**	144	**165**	169	**220**	215	**275**	420	**330**	102	**385**	175	**440**	101

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441	115	**519**	586	**597**	426	**675**	382	**753**	324	**831**	13	**909**	161	**987**	223
442	546	**520**	605	**598**	238	**676**	528	**754**	341	**832**	74	**910**	481	**988**	225
443	136	**521**	145	**599**	432	**677**	419	**755**	290	**833**	296	**911**	545	**989**	404
444	388	**522**	50	**600**	500	**678**	149	**756**	337	**834**	300	**912**	327	**990**	303
445	290	**523**	151	**601**	363	**679**	60	**757**	65	**835**	483	**913**	461	**991**	16
446	360	**524**	560	**602**	302	**680**	274	**758**	235	**836**	483	**914**	365	**992**	542
447	393	**525**	545	**603**	480	**681**	279	**759**	334	**837**	453	**915**	362	**993**	203
448	337	**526**	143	**604**	132	**682**	119	**760**	328	**838**	155	**916**	260	**994**	99
449	349	**527**	383	**605**	149	**683**	62	**761**	326	**839**	105	**917**	389	**995**	205
450	567	**528**	25	**606**	479	**684**	499	**762**	432	**840**	247	**918**	568	**996**	168
451	103	**529**	12	**607**	500	**685**	28	**763**	275	**841**	491	**919**	552	**997**	262
452	132	**530**	139	**608**	508	**686**	541	**764**	325	**842**	153	**920**	153	**998**	161
453	347	**531**	194	**609**	342	**687**	432	**765**	21	**843**	60	**921**	188	**999**	105
454	125	**532**	180	**610**	312	**688**	120	**766**	419	**844**	283	**922**	25	**1000**	519
455	562	**533**	242	**611**	57	**689**	148	**767**	419	**845**	77	**923**	181	**1001**	519
456	615	**534**	24	**612**	94	**690**	128	**768**	264	**846**	480	**924**	24	**1002**	521
457	354	**535**	457	**613**	7	**691**	422	**769**	276	**847**	523	**925**	157	**1003**	404
458	156	**536**	293	**614**	39	**692**	372	**770**	434	**848**	30	**926**	361	**1004**	464
459	308	**537**	414	**615**	163	**693**	606	**771**	354	**849**	30	**927**	129	**1005**	152
460	356	**538**	119	**616**	481	**694**	240	**772**	163	**850**	218	**928**	97	**1006**	107
461	402	**539**	188	**617**	77	**695**	97	**773**	173	**851**	71	**929**	336	**1007**	301
462	279	**540**	421	**618**	278	**696**	478	**774**	18	**852**	509	**930**	442	**1008**	333
463	50	**541**	289	**619**	183	**697**	477	**775**	162	**853**	465	**931**	190	**1009**	274
464	608	**542**	166	**620**	108	**698**	150	**776**	273	**854**	444	**932**	193	**1010**	329
465	234	**543**	198	**621**	502	**699**	75	**777**	346	**855**	462	**933**	535	**1011**	97
466	237	**544**	115	**622**	243	**700**	331	**778**	60	**856**	457	**934**	224	**1012**	224
467	363	**545**	234	**623**	120	**701**	340	**779**	267	**857**	420	**935**	543	**1013**	19
468	328	**546**	10	**624**	377	**702**	263	**780**	162	**858**	394	**936**	334	**1014**	39
469	345	**547**	304	**625**	6	**703**	302	**781**	443	**859**	183	**937**	555	**1015**	125
470	415	**548**	238	**626**	419	**704**	402	**782**	241	**860**	31	**938**	93	**1016**	46
471	262	**549**	67	**627**	46	**705**	302	**783**	375	**861**	394	**939**	522	**1017**	128
472	179	**550**	547	**628**	9	**706**	305	**784**	273	**862**	164	**940**	509	**1018**	378
473	556	**551**	518	**629**	336	**707**	328	**785**	441	**863**	288	**941**	610	**1019**	272
474	143	**552**	606	**630**	590	**708**	379	**786**	161	**864**	165	**942**	157	**1020**	247
475	256	**553**	372	**631**	126	**709**	331	**787**	110	**865**	17	**943**	440	**1021**	292
476	308	**554**	204	**632**	49	**710**	248	**788**	275	**866**	379	**944**	509	**1022**	362
477	340	**555**	383	**633**	107	**711**	187	**789**	394	**867**	332	**945**	519	**1023**	98
478	143	**556**	336	**634**	385	**712**	34	**790**	340	**868**	467	**946**	174	**1024**	463
479	422	**557**	53	**635**	209	**713**	294	**791**	435	**869**	523	**947**	96	**1025**	562
480	369	**558**	377	**636**	76	**714**	303	**792**	287	**870**	523	**948**	418	**1026**	556
481	384	**559**	207	**637**	357	**715**	303	**793**	345	**871**	466	**949**	186	**1027**	604
482	296	**560**	564	**638**	341	**716**	395	**794**	79	**872**	466	**950**	461	**1028**	617
483	440	**561**	535	**639**	152	**717**	66	**795**	400	**873**	466	**951**	493	**1029**	179
484	569	**562**	427	**640**	73	**718**	502	**796**	66	**874**	465	**952**	13	**1030**	268
485	564	**563**	615	**641**	93	**719**	334	**797**	435	**875**	458	**953**	508	**1031**	423
486	130	**564**	50	**642**	102	**720**	78	**798**	281	**876**	149	**954**	413	**1032**	151
487	203	**565**	235	**643**	291	**721**	376	**799**	375	**877**	75	**955**	192	**1033**	610
488	181	**566**	546	**644**	302	**722**	279	**800**	510	**878**	165	**956**	150	**1034**	512
489	338	**567**	377	**645**	188	**723**	120	**801**	341	**879**	182	**957**	39	**1035**	267
490	370	**568**	543	**646**	9	**724**	278	**802**	129	**880**	187	**958**	499	**1036**	512
491	122	**569**	348	**647**	125	**725**	302	**803**	275	**881**	455	**959**	499	**1037**	511
492	125	**570**	351	**648**	477	**726**	563	**804**	110	**882**	224	**960**	478	**1038**	331
493	418	**571**	116	**649**	424	**727**	275	**805**	208	**883**	23	**961**	479	**1039**	274
494	164	**572**	619	**650**	425	**728**	92	**806**	62	**884**	152	**962**	480	**1040**	404
495	218	**573**	616	**651**	161	**729**	276	**807**	171	**885**	158	**963**	72	**1041**	307
496	25	**574**	550	**652**	379	**730**	149	**808**	325	**886**	443	**964**	275	**1042**	281
497	146	**575**	423	**653**	168	**731**	372	**809**	587	**887**	409	**965**	41	**1043**	268
498	40	**576**	352	**654**	513	**732**	389	**810**	433	**888**	457	**966**	39	**1044**	112
499	604	**577**	346	**655**	293	**733**	426	**811**	96	**889**	303	**967**	38	**1045**	281
500	396	**578**	244	**656**	136	**734**	161	**812**	332	**890**	100	**968**	389	**1046**	92
501	132	**579**	74	**657**	276	**735**	363	**813**	359	**891**	502	**969**	173	**1047**	94
502	416	**580**	115	**658**	110	**736**	418	**814**	160	**892**	509	**970**	33	**1048**	279
503	511	**581**	395	**659**	276	**737**	276	**815**	374	**893**	304	**971**	33	**1049**	339
504	453	**582**	108	**660**	302	**738**	312	**816**	349	**894**	464	**972**	36	**1050**	153
505	40	**583**	381	**661**	358	**739**	47	**817**	440	**895**	136	**973**	301	**1051**	305
506	420	**584**	408	**662**	8	**740**	259	**818**	440	**896**	524	**974**	34	**1052**	453
507	463	**585**	386	**663**	160	**741**	437	**819**	224	**897**	464	**975**	137	**1053**	358
508	460	**586**	548	**664**	610	**742**	61	**820**	169	**898**	460	**976**	102	**1054**	359
509	464	**587**	495	**665**	373	**743**	243	**821**	133	**899**	509	**977**	601	**1055**	470
510	491	**588**	98	**666**	305	**744**	438	**822**	361	**900**	510	**978**	599	**1056**	253
511	193	**589**	388	**667**	191	**745**	95	**823**	186	**901**	61	**979**	601	**1057**	406
512	478	**590**	383	**668**	404	**746**	299	**824**	291	**902**	491	**980**	427	**1058**	197
513	557	**591**	540	**669**	303	**747**	263	**825**	362	**903**	493	**981**	426	**1059**	39
514	39	**592**	240	**670**	362	**748**	396	**826**	478	**904**	187	**982**	393	**1660**	226
515	481	**593**	544	**671**	592	**749**	159	**827**	79	**905**	211	**983**	328	**1061**	495
516	468	**594**	156	**672**	179	**750**	68	**828**	413	**906**	464	**984**	130	**1062**	97
517	558	**595**	359	**673**	253	**751**	376	**829**	116	**907**	168	**985**	226	**1063**	448
518	380	**596**	426	**674**	538	**752**	209	**830**	29	**908**	241	**986**	298	**1064**	285

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1065	363	**1143**	344	**1221**	119	**1299**	291	**1377**	85	**1455**	626	**1533**	626	**1611**	429
1066	499	**1144**	317	**1222**	436	**1300**	238	**1378**	144	**1456**	626	**1534**	278	**1612**	33
1067	554	**1145**	159	**1223**	5	**1301**	18	**1379**	233	**1457**	37	**1535**	320	**1613**	378
1068	507	**1146**	371	**1224**	257	**1302**	38	**1380**	257	**1458**	447	**1536**	265	**1614**	201
1069	327	**1147**	122	**1225**	346	**1303**	273	**1381**	257	**1459**	423	**1537**	293	**1615**	93
1070	507	**1148**	233	**1226**	115	**1304**	78	**1382**	329	**1460**	94	**1538**	143	**1616**	237
1071	377	**1149**	394	**1227**	304	**1305**	508	**1383**	317	**1461**	234	**1539**	282	**1617**	198
1072	323	**1150**	133	**1228**	211	**1306**	425	**1384**	317	**1462**	239	**1540**	91	**1618**	328
1073	76	**1151**	179	**1229**	348	**1307**	370	**1385**	439	**1363**	183	**1541**	546	**1619**	327
1074	508	**1152**	179	**1230**	509	**1308**	160	**1386**	465	**1464**	548	**1542**	386	**1620**	393
1075	610	**1153**	359	**1231**	488	**1309**	158	**1387**	181	**1465**	310	**1543**	288	**1621**	319
1076	290	**1154**	123	**1232**	487	**1310**	6	**1388**	546	**1466**	544	**1544**	432	**1622**	320
1077	351	**1155**	145	**1233**	256	**1311**	394	**1389**	628	**1467**	626	**1545**	379	**1623**	320
1078	360	**1156**	329	**1234**	91	**1312**	132	**1390**	534	**1468**	375	**1546**	390	**1624**	320
1079	131	**1157**	418	**1235**	14	**1313**	380	**1391**	240	**1469**	413	**1547**	609	**1625**	356
1080	63	**1158**	507	**1236**	609	**1314**	374	**1392**	554	**1470**	253	**1548**	426	**1626**	339
1081	354	**1159**	507	**1237**	438	**1315**	480	**1393**	7	**1471**	151	**1549**	164	**1627**	415
1082	91	**1160**	68	**1238**	125	**1316**	126	**1394**	567	**1772**	71	**1550**	432	**1628**	415
1083	512	**1161**	280	**1239**	45	**1317**	30	**1395**	614	**1473**	334	**1551**	90	**1629**	414
1084	524	**1162**	50	**1240**	363	**1318**	30	**1396**	627	**1474**	24	**1552**	254	**1630**	61
1085	598	**1163**	415	**1241**	295	**1319**	31	**1397**	255	**1475**	626	**1553**	166	**1631**	80
1086	89	**1164**	12	**1242**	466	**1320**	627	**1398**	626	**1476**	282	**1554**	533	**1632**	626
1087	124	**1165**	415	**1243**	339	**1321**	331	**1399**	329	**1477**	507	**1555**	89	**1633**	435
1088	594	**1166**	31	**1244**	150	**1322**	268	**1400**	626	**1478**	551	**1556**	604	**1634**	131
1089	186	**1167**	30	**1245**	226	**1323**	264	**1401**	533	**1479**	396	**1557**	307	**1635**	48
1090	79	**1168**	45	**1246**	227	**1324**	297	**1402**	324	**1480**	537	**1558**	150	**1636**	461
1091	105	**1169**	13	**1247**	237	**1325**	276	**1403**	543	**1481**	346	**1559**	120	**1637**	180
1092	87	**1170**	12	**1248**	242	**1326**	381	**1404**	329	**1482**	337	**1560**	610	**1638**	290
1093	471	**1171**	284	**1249**	378	**1327**	127	**1405**	590	**1483**	277	**1561**	72	**1639**	138
1094	309	**1172**	348	**1250**	432	**1328**	282	**1406**	405	**1484**	342	**1562**	555	**1640**	468
1095	592	**1173**	425	**1251**	428	**1329**	192	**1407**	288	**1485**	545	**1563**	611	**1641**	228
1096	301	**1174**	172	**1252**	183	**1330**	394	**1408**	302	**1486**	343	**1564**	120	**1642**	227
1097	399	**1175**	167	**1253**	241	**1331**	58	**1409**	290	**1487**	300	**1565**	287	**1643**	269
1098	463	**1176**	500	**1254**	134	**1332**	487	**1410**	243	**1488**	315	**1566**	540	**1644**	71
1099	300	**1177**	109	**1255**	346	**1333**	25	**1411**	609	**1489**	405	**1567**	533	**1645**	488
1100	276	**1178**	158	**1256**	553	**1334**	493	**1412**	169	**1490**	345	**1568**	7	**1646**	487
1101	301	**1179**	170	**1257**	9	**1335**	373	**1413**	255	**1491**	458	**1569**	614	**1647**	57
1102	309	**1180**	107	**1258**	277	**1336**	341	**1414**	52	**1492**	626	**1570**	542	**1648**	437
1103	135	**1181**	388	**1259**	627	**1337**	198	**1415**	369	**1493**	553	**1571**	262	**1649**	425
1104	259	**1182**	263	**1260**	370	**1338**	266	**1416**	303	**1494**	615	**1572**	527	**1650**	421
1105	269	**1183**	237	**1361**	551	**1339**	323	**1417**	548	**1495**	322	**1573**	267	**1651**	430
1106	128	**1184**	434	**1262**	111	**1340**	267	**1418**	535	**1496**	315	**1574**	551	**1652**	626
1107	508	**1185**	510	**1263**	359	**1341**	182	**1419**	566	**1497**	15	**1575**	547	**1653**	327
1108	28	**1186**	265	**1264**	306	**1342**	274	**1420**	558	**1498**	587	**1576**	626	**1654**	534
1109	381	**1187**	448	**1265**	302	**1343**	244	**1421**	145	**1499**	288	**1577**	621	**1655**	404
1110	381	**1188**	96	**1266**	137	**1344**	27	**1422**	609	**1500**	119	**1578**	146	**1656**	225
1111	402	**1189**	185	**1267**	20	**1345**	436	**1423**	551	**1501**	286	**1579**	602	**1657**	544
1112	132	**1190**	456	**1268**	502	**1346**	426	**1424**	615	**1502**	561	**1580**	590	**1658**	290
1113	217	**1191**	346	**1269**	374	**1347**	427	**1425**	547	**1503**	180	**1581**	309	**1659**	235
1114	64	**1192**	246	**1270**	378	**1348**	419	**1426**	345	**1504**	483	**1582**	391	**1660**	7
1115	217	**1193**	381	**1271**	385	**1349**	91	**1427**	285	**1505**	610	**1583**	626	**1661**	235
1116	448	**1194**	529	**1272**	272	**1350**	187	**1428**	627	**1506**	604	**1584**	370	**1662**	392
1117	500	**1195**	53	**1273**	437	**1351**	356	**1429**	307	**1507**	124	**1585**	543	**1663**	169
1118	109	**1196**	16	**1274**	330	**1352**	435	**1430**	120	**1508**	539	**1586**	590	**1664**	169
1119	361	**1197**	280	**1275**	272	**1353**	227	**1431**	86	**1509**	254	**1587**	609	**1665**	304
1120	321	**1198**	65	**1276**	292	**1354**	270	**1432**	627	**1510**	557	**1588**	188	**1666**	11
1121	413	**1199**	6	**1277**	293	**1355**	402	**1433**	338	**1511**	626	**1589**	548	**1667**	425
1122	370	**1200**	379	**1278**	293	**1356**	535	**1434**	534	**1512**	125	**1590**	166	**1668**	430
1123	617	**1201**	135	**1279**	292	**1357**	463	**1435**	626	**1513**	257	**1591**	122	**1669**	439
1124	122	**1202**	362	**1280**	397	**1358**	556	**1436**	552	**1514**	549	**1592**	172	**1670**	390
1125	23	**1203**	417	**1281**	292	**1359**	6	**1437**	217	**1515**	256	**1593**	564	**1671**	259
1126	432	**1204**	490	**1282**	145	**1360**	315	**1438**	626	**1516**	608	**1594**	261	**1672**	35
1127	510	**1205**	170	**1283**	382	**1361**	545	**1439**	609	**1517**	276	**1595**	465	**1673**	13
1128	96	**1206**	100	**1284**	315	**1362**	255	**1440**	477	**1518**	456	**1596**	562	**1674**	108
1129	554	**1207**	102	**1285**	234	**1363**	544	**1441**	522	**1519**	225	**1597**	567	**1675**	180
1130	281	**1208**	106	**1286**	421	**1364**	597	**1442**	504	**1520**	132	**1598**	590	**1676**	603
1131	593	**1209**	154	**1287**	263	**1365**	157	**1443**	592	**1521**	294	**1599**	384	**1677**	320
1132	585	**1210**	73	**1288**	599	**1366**	284	**1444**	380	**1522**	263	**1600**	61	**1678**	480
1133	541	**1211**	74	**1289**	328	**1367**	253	**1445**	627	**1523**	543	**1601**	346	**1679**	289
1134	512	**1212**	224	**1290**	330	**1368**	590	**1446**	626	**1524**	559	**1602**	241	**1680**	73
1135	436	**1213**	114	**1291**	238	**1369**	255	**1447**	542	**1525**	64	**1603**	239	**1681**	626
1136	426	**1214**	152	**1292**	18	**1370**	538	**1448**	594	**1526**	397	**1604**	490	**1682**	417
1137	26	**1215**	78	**1293**	26	**1371**	610	**1449**	509	**1527**	380	**1605**	425	**1683**	98
1138	203	**1216**	48	**1294**	202	**1372**	381	**1450**	436	**1528**	556	**1606**	424	**1684**	458
1139	93	**1217**	71	**1295**	292	**1373**	549	**1451**	48	**1529**	555	**1607**	434	**1685**	257
1140	462	**1218**	30	**1296**	261	**1374**	283	**1452**	37	**1530**	563	**1608**	201	**1686**	306
1141	72	**1219**	415	**1297**	18	**1375**	627	**1453**	424	**1531**	46	**1609**	438	**1687**	493
1142	478	**1220**	568	**1298**	269	**1376**	87	**1454**	559	**1532**	50	**1610**	328	**1688**	108

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1689	49	**1767**	88	**1845**	495	**1923**	39	**2001**	13	**2079**	399	**2157**	569	**2235**	333
1690	46	**1768**	29	**1846**	406	**1924**	260	**2002**	102	**2080**	67	**2158**	255	**2236**	372
1691	49	**1769**	414	**1847**	429	**1925**	99	**2003**	528	**2081**	37	**2159**	282	**2237**	403
1692	522	**1770**	175	**1848**	307	**1926**	490	**2004**	364	**2082**	114	**2160**	254	**2238**	58
1693	332	**1771**	517	**1849**	139	**1928**	172	**2005**	200	**2083**	95	**2161**	263	**2239**	275
1694	62	**1772**	488	**1850**	280	**1928**	208	**2006**	299	**2084**	292	**2162**	500	**2240**	420
1695	390	**1773**	497	**1851**	427	**1929**	160	**2007**	356	**2085**	463	**2163**	522	**2241**	615
1696	429	**1774**	534	**1852**	344	**1930**	511	**2008**	471	**2086**	462	**2164**	453	**2242**	146
1697	295	**1775**	560	**1853**	309	**1931**	89	**2009**	409	**2087**	500	**2165**	503	**2243**	454
1698	458	**1776**	600	**1854**	519	**1932**	261	**2010**	165	**2088**	298	**2166**	40	**2244**	414
1699	341	**1777**	201	**1855**	479	**1933**	272	**2011**	301	**2089**	219	**2167**	287	**2245**	627
1700	114	**1778**	539	**1856**	556	**1934**	626	**2012**	495	**2090**	88	**2168**	320	**2246**	467
1701	114	**1779**	408	**1857**	185	**1935**	279	**2013**	509	**2091**	291	**2169**	626	**2247**	457
1702	439	**1780**	193	**1858**	610	**1936**	378	**2014**	480	**2092**	162	**2170**	243	**2248**	147
1703	100	**1781**	269	**1859**	543	**1937**	135	**2015**	228	**2093**	491	**2171**	261	**2249**	462
1704	442	**1782**	490	**1860**	296	**1938**	278	**2016**	187	**2094**	471	**2172**	393	**2250**	472
1705	210	**1783**	203	**1861**	126	**1939**	345	**2017**	151	**2095**	626	**2173**	211	**2251**	403
1706	441	**1784**	194	**1862**	317	**1940**	334	**2018**	461	**2096**	316	**2174**	242	**2252**	200
1707	161	**1785**	380	**1863**	128	**1941**	111	**2019**	295	**2097**	392	**2175**	112	**2253**	494
1708	218	**1786**	138	**1864**	154	**1942**	242	**2020**	472	**2098**	364	**2176**	254	**2254**	269
1709	205	**1787**	548	**1865**	181	**1943**	388	**2021**	477	**2199**	405	**2177**	270	**2255**	68
1710	59	**1788**	260	**1866**	126	**1944**	279	**2022**	375	**2100**	269	**2178**	236	**2256**	352
1711	135	**1789**	491	**1867**	59	**1945**	325	**2023**	158	**2101**	360	**2179**	34	**2257**	527
1712	434	**1790**	500	**1868**	185	**1946**	270	**2024**	5	**2102**	495	**2180**	102	**2258**	492
1713	326	**1791**	65	**1869**	136	**1947**	298	**2025**	325	**2103**	330	**2181**	105	**2259**	492
1714	479	**1792**	325	**1870**	153	**1948**	328	**2026**	211	**2104**	164	**2182**	270	**2260**	89
1715	88	**1793**	511	**1871**	6	**1949**	420	**2027**	168	**2105**	341	**2183**	76	**2261**	323
1716	228	**1794**	228	**1872**	124	**1950**	326	**2028**	421	**2106**	240	**2184**	380	**2262**	321
1717	174	**1795**	229	**1873**	155	**1951**	8	**2029**	98	**2107**	262	**2185**	124	**2263**	197
1718	458	**1796**	511	**1874**	190	**1952**	93	**2030**	315	**2108**	383	**2186**	74	**2264**	170
1719	18	**1797**	207	**1875**	109	**1953**	206	**2031**	318	**2109**	374	**2187**	374	**2265**	148
1720	21	**1798**	480	**1876**	182	**1954**	60	**2032**	29	**2110**	447	**2188**	420	**2266**	201
1721	87	**1799**	419	**1877**	457	**1955**	522	**2033**	286	**2111**	521	**2189**	149	**2267**	511
1722	478	**1800**	419	**1878**	508	**1956**	335	**2034**	433	**2112**	108	**2190**	131	**2268**	348
1723	15	**1801**	419	**1879**	511	**1957**	333	**2035**	392	**2113**	489	**2191**	150	**2269**	351
1724	16	**1802**	542	**1880**	183	**1958**	547	**2036**	350	**2114**	456	**2192**	149	**2270**	207
1725	40	**1803**	378	**1881**	48	**1959**	121	**2037**	146	**2115**	294	**2193**	72	**2271**	16
1726	89	**1804**	379	**1882**	348	**1960**	191	**2038**	180	**2116**	262	**2194**	73	**2272**	351
1727	15	**1805**	537	**1883**	372	**1961**	267	**2039**	256	**2117**	477	**2195**	392	**2273**	233
1728	243	**1806**	137	**1884**	143	**1962**	399	**2040**	145	**2118**	318	**2196**	374	**2274**	105
1729	145	**1807**	275	**1885**	256	**1963**	299	**2041**	316	**2119**	478	**2197**	258	**2275**	433
1730	88	**1808**	392	**1886**	255	**1964**	275	**2042**	91	**2120**	325	**2198**	244	**2276**	345
1731	513	**1809**	371	**1887**	466	**1965**	264	**2043**	255	**2121**	14	**2199**	433	**2277**	206
1732	347	**1810**	279	**1888**	471	**1966**	561	**2044**	86	**2122**	311	**2200**	278	**2278**	160
1733	201	**1811**	271	**1889**	494	**1967**	241	**2045**	322	**2123**	403	**2201**	393	**2279**	535
1734	26	**1812**	379	**1890**	294	**1968**	243	**2046**	408	**2124**	78	**2202**	389	**2280**	321
1735	489	**1813**	504	**1891**	338	**1969**	397	**2047**	355	**2125**	330	**2203**	434	**2281**	441
1736	427	**1814**	128	**1892**	467	**1970**	268	**2048**	338	**2126**	263	**2204**	63	**2282**	107
1737	457	**1815**	331	**1893**	257	**1971**	306	**2049**	388	**3127**	351	**2205**	433	**2283**	554
1738	90	**1816**	533	**1894**	379	**1972**	334	**2050**	431	**2128**	266	**2206**	185	**2284**	415
1739	19	**1817**	533	**1895**	268	**1973**	378	**2051**	388	**2129**	164	**2207**	259	**2285**	278
1740	502	**1818**	633	**1896**	126	**1974**	333	**2052**	437	**2130**	291	**2208**	173	**2286**	51
1741	136	**1819**	347	**1897**	294	**1975**	401	**2053**	374	**2131**	292	**2209**	138	**2287**	348
1742	455	**1820**	613	**1898**	135	**1976**	275	**2054**	428	**2132**	259	**2210**	35	**2288**	247
1743	224	**1821**	264	**1899**	512	**1977**	402	**2055**	333	**2133**	461	**2211**	426	**2289**	395
1744	407	**1822**	419	**1900**	633	**1978**	94	**2056**	289	**2134**	323	**2212**	399	**2290**	287
1745	361	**1823**	529	**1901**	72	**1979**	401	**2057**	330	**2135**	174	**2213**	487	**2291**	628
1746	316	**1824**	27	**1902**	633	**1980**	328	**2058**	387	**2136**	340	**2214**	229	**2292**	627
1747	237	**1825**	262	**1903**	427	**1981**	180	**2059**	277	**2137**	362	**2215**	136	**2293**	154
1748	86	**1826**	540	**1904**	26	**1982**	369	**2060**	379	**2138**	378	**2216**	490	**2294**	79
1749	127	**1827**	136	**1905**	512	**1983**	626	**2061**	387	**2139**	5	**2217**	228	**2295**	99
1750	160	**1828**	376	**1906**	625	**1984**	187	**2062**	430	**2140**	266	**2218**	511	**2296**	184
1751	154	**1829**	150	**1907**	267	**1985**	258	**2063**	167	**2141**	157	**2219**	39	**2297**	183
1752	292	**1830**	150	**1908**	238	**1986**	626	**2064**	439	**2142**	128	**2220**	464	**2298**	563
1753	292	**1831**	376	**1909**	336	**1987**	134	**2065**	387	**2143**	121	**2221**	494	**2299**	550
1754	133	**1832**	377	**1910**	370	**1988**	626	**2066**	126	**2144**	145	**2222**	455	**2300**	184
1755	292	**1833**	583	**1911**	126	**1989**	467	**2067**	386	**2145**	292	**2223**	38	**2301**	274
1756	191	**1834**	150	**1912**	98	**1990**	518	**2068**	94	**2146**	123	**2224**	145	**2302**	24
1757	261	**1835**	182	**1913**	200	**1991**	283	**2069**	131	**2147**	153	**2225**	464	**2303**	561
1758	491	**1836**	553	**1914**	377	**1992**	87	**2070**	279	**2148**	382	**2226**	603	**2304**	155
1759	597	**1837**	552	**1915**	408	**1993**	388	**2071**	437	**2149**	382	**2227**	90	**2305**	210
1760	521	**1838**	550	**1916**	375	**1994**	356	**2072**	18	**2150**	457	**2228**	392	**2306**	552
1761	277	**1839**	443	**1917**	130	**1995**	159	**2073**	190	**2151**	316	**2229**	290	**2307**	610
1762	52	**1840**	528	**1918**	287	**1996**	401	**2074**	352	**2152**	297	**2230**	36	**2308**	257
1763	521	**1841**	190	**1919**	125	**1997**	190	**2075**	22	**2153**	297	**2231**	*	**2309**	239
1764	414	**1842**	135	**1920**	387	**1998**	105	**2076**	173	**2154**	303	**2232**	306	**2310**	217
1765	319	**1843**	242	**1921**	408	**1999**	100	**2077**	407	**2155**	383	**2233**	280	**2311**	432
1766	402	**1844**	442	**1922**	8	**2000**	6	**2078**	22	**2156**	304	**2234**	364	**2312**	437

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2313	8	**2391**	78	**2469**	431	**2547**	337	**2625**	109	**2703**	216	**2781**	175	**2859**	553
2314	325	**2392**	354	**2470**	426	**2548**	424	**2626**	495	**2704**	259	**2782**	152	**2860**	605
2315	322	**2393**	615	**2471**	347	**2549**	209	**2627**	274	**2705**	121	**2783**	422	**2861**	120
2316	217	**2394**	108	**2472**	386	**2550**	369	**2628**	541	**2706**	608	**2784**	171	**2862**	36
2317	23	**2395**	113	**2473**	132	**2551**	382	**2629**	338	**2707**	479	**2785**	75	**2863**	146
2318	216	**2396**	273	**2474**	424	**2552**	539	**2630**	536	**2708**	187	**2786**	541	**2864**	529
2319	46	**2397**	262	**2475**	385	**2553**	326	**2631**	613	**2709**	357	**2787**	174	**2865**	434
2320	184	**2398**	241	**2476**	267	**2554**	209	**2632**	175	**2710**	437	**2788**	89	**2866**	349
2321	36	**2399**	552	**2477**	205	**2555**	357	**2633**	381	**2711**	560	**2789**	164	**2867**	370
2322	127	**2400**	549	**2478**	158	**2556**	167	**2634**	144	**2712**	104	**2790**	164	**2868**	171
2323	92	**2401**	96	**2479**	104	**2557**	228	**2635**	520	**2713**	429	**2791**	388	**2869**	223
2324	420	**2402**	186	**2480**	184	**2558**	395	**2636**	478	**2714**	560	**2792**	74	**2870**	12
2325	168	**2403**	407	**2481**	464	**2559**	592	**2637**	112	**2715**	432	**2793**	384	**2871**	12
2326	596	**2404**	383	**2482**	48	**2560**	488	**2638**	163	**2716**	385	**2794**	191	**2872**	520
2327	167	**2405**	88	**2483**	157	**2561**	325	**2639**	453	**2717**	266	**2795**	326	**2873**	165
2328	41	**2406**	179	**2484**	481	**2562**	456	**2640**	150	**2718**	328	**2796**	621	**2874**	389
2329	206	**2407**	359	**2485**	383	**2563**	298	**2641**	22	**2719**	109	**2797**	456	**2875**	135
2330	58	**2408**	359	**2486**	265	**2564**	92	**2642**	121	**2720**	298	**2798**	407	**2876**	35
2331	191	**2409**	120	**2487**	32	**2565**	19	**2643**	611	**2721**	468	**2799**	264	**2877**	134
2332	627	**2410**	282	**2488**	236	**2566**	168	**2644**	254	**2722**	162	**2800**	329	**2878**	202
2333	282	**2411**	71	**2489**	429	**2567**	495	**2645**	610	**2723**	597	**2801**	336	**2879**	319
2334	609	**2412**	119	**2490**	285	**2568**	459	**2646**	161	**2724**	107	**2802**	289	**2880**	401
2335	216	**2413**	179	**2491**	218	**2569**	619	**2647**	86	**5725**	621	**2803**	287	**2881**	197
2336	216	**2414**	539	**2492**	36	**2570**	536	**2648**	120	**2726**	598	**2804**	528	**2882**	301
2337	204	**2415**	435	**2493**	242	**2571**	186	**2649**	439	**2727**	146	**2805**	341	**2883**	465
2338	547	**2416**	121	**2494**	398	**2572**	429	**2650**	180	**2728**	613	**2806**	206	**2884**	489
2339	418	**2417**	568	**2495**	625	**2573**	113	**2651**	603	**2729**	544	**2807**	385	**2885**	300
2340	295	**2418**	586	**2496**	360	**2574**	27	**2652**	344	**2730**	614	**2808**	479	**2886**	135
2341	558	**2419**	414	**2497**	424	**2575**	390	**2653**	144	**2731**	48	**2809**	77	**2887**	95
2342	379	**2420**	107	**2498**	339	**2576**	455	**2654**	596	**2732**	147	**2810**	186	**2888**	387
2343	455	**2421**	423	**2499**	354	**2577**	280	**2655**	438	**2733**	257	**2811**	160	**2889**	171
2344	318	**2422**	443	**2500**	338	**2578**	159	**2656**	322	**2734**	183	**2812**	459	**2890**	299
2345	588	**2423**	75	**2501**	154	**2579**	63	**2657**	354	**2735**	611	**2813**	600	**2891**	28
2346	538	**2424**	479	**2502**	156	**2580**	206	**2658**	358	**2736**	585	**2814**	303	**2892**	134
2347	120	**2425**	489	**2503**	202	**2581**	337	**2659**	353	**2737**	59	**2815**	165	**2893**	170
2348	602	**2426**	128	**2504**	337	**2582**	156	**2660**	447	**2738**	312	**2816**	281	**2894**	136
2349	362	**2427**	639	**2505**	133	**2583**	159	**2661**	355	**2739**	503	**2817**	131	**2895**	434
2350	192	**2428**	439	**2506**	16	**2584**	342	**2662**	425	**2740**	502	**2818**	352	**2896**	204
2351	199	**2429**	436	**2507**	49	**2585**	385	**2663**	428	**2741**	517	**2819**	246	**2897**	401
2352	216	**2430**	489	**2508**	184	**2586**	188	**2664**	428	**2742**	136	**2820**	354	**2898**	347
2353	616	**2431**	537	**3509**	465	**2587**	386	**2665**	20	**2743**	517	**2821**	349	**2899**	46
2354	435	**2432**	599	**2510**	186	**2588**	154	**2666**	18	**2744**	8	**2822**	113	**2900**	21
2355	109	**2433**	537	**2511**	115	**2589**	621	**2667**	133	**2745**	512	**2823**	115	**2901**	21
2356	162	**2434**	138	**2512**	489	**2590**	99	**2668**	144	**2746**	560	**2824**	286	**2902**	227
2357	389	**2435**	100	**2513**	483	**2591**	202	**2669**	611	**2747**	7	**2825**	621	**2903**	*
2358	518	**2436**	540	**2514**	625	**2592**	101	**2670**	550	**2748**	503	**2826**	431	**2904**	17
2359	627	**2437**	283	**2515**	217	**2593**	159	**2671**	254	**2749**	151	**2827**	417	**2905**	31
2360	111	**2438**	108	**2519**	86	**2594**	385	**2672**	501	**2750**	376	**2828**	556	**2906**	151
2361	551	**2439**	306	**2517**	561	**2595**	101	**2673**	37	**2751**	616	**2829**	423	**2907**	466
2362	396	**2440**	49	**2518**	123	**2596**	103	**2674**	459	**2752**	163	**2830**	103	**2908**	305
2363	104	**2441**	470	**2519**	369	**2597**	300	**2675**	259	**2753**	189	**2831**	339	**2909**	204
2364	448	**2442**	257	**2520**	369	**2598**	188	**2676**	308	**2754**	601	**2832**	342	**2910**	549
2365	216	**2443**	559	**2521**	120	**2599**	101	**2677**	354	**2755**	209	**2833**	436	**2911**	273
2366	627	**2444**	629	**2522**	135	**2600**	152	**2678**	616	**2755**	295	**2834**	518	**2912**	155
2367	77	**2445**	360	**2523**	8	**2601**	183	**2679**	19	**2757**	399	**2835**	455	**2913**	156
2368	205	**2446**	119	**2524**	539	**2602**	309	**2680**	15	**2758**	9	**2836**	167	**2914**	76
2369	40	**2447**	65	**2525**	119	**2603**	530	**2681**	17	**2759**	338	**2837**	351	**2915**	134
2370	261	**2448**	72	**2526**	569	**2604**	401	**2682**	17	**2760**	355	**2838**	85	**2916**	198
2371	288	**2449**	356	**2527**	383	**2605**	217	**2683**	20	**2761**	536	**2839**	273	**2917**	113
2372	216	**2450**	218	**2528**	236	**2606**	115	**2684**	268	**2762**	60	**2840**	93	**2918**	299
2373	306	**2451**	330	**2529**	495	**2607**	458	**2685**	625	**2763**	428	**2841**	414	**2919**	493
2374	234	**2452**	305	**2530**	539	**2608**	529	**2686**	266	**2764**	286	**2842**	318	**2920**	9
2375	23	**2453**	627	**2531**	92	**2609**	459	**2687**	464	**2765**	424	**2843**	58	**2921**	207
2376	311	**2454**	398	**2532**	65	**2610**	511	**2688**	144	**2766**	66	**2844**	479	**2922**	343
2377	555	**2455**	364	**2533**	427	**2611**	464	**2689**	85	**2767**	172	**2845**	537	**2023**	398
2378	627	**2456**	560	**2534**	202	**2612**	25	**2690**	22	**2768**	200	**2846**	22	**2924**	389
2379	545	**2457**	625	**2535**	360	**2613**	454	**2691**	596	**2769**	189	**2847**	147	**2925**	77
2380	316	**2458**	556	**2536**	501	**2614**	457	**2692**	555	**2770**	105	**2848**	280	**2926**	309
2381	357	**2459**	316	**2537**	501	**2615**	500	**2693**	565	**2771**	614	**2849**	88	**2927**	358
2382	551	**2460**	558	**2538**	343	**2616**	465	**2694**	565	**2772**	188	**2850**	547	**2928**	31
2383	24	**2461**	556	**2539**	16	**2617**	288	**2695**	400	**2773**	199	**2851**	615	**2929**	201
2384	464	**2462**	101	**2540**	557	**2618**	245	**2696**	94	**2774**	503	**2852**	206	**2930**	294
2385	152	**2463**	129	**2541**	95	**2619**	10	**2697**	600	**2775**	439	**2853**	297	**2931**	358
2386	536	**2464**	434	**2542**	226	**2620**	404	**2698**	295	**2776**	190	**2854**	545	**2932**	602
2387	123	**2465**	157	**2543**	633	**2621**	627	**2699**	288	**2777**	504	**2855**	621	**2933**	87
2388	285	**2466**	99	**2544**	126	**2622**	105	**2700**	188	**2778**	400	**2856**	319	**2934**	416
2389	216	**2467**	263	**2545**	454	**2623**	11	**2701**	202	**2779**	409	**2857**	563	**2935**	189
2390	216	**2468**	110	**2546**	419	**2624**	297	**2702**	47	**2780**	189	**2858**	603	**2936**	128

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2936	128	**3014**	545	**3092**	558	**3170**	603	**3248**	169	**3326**	187	**3404**	161	**3482**	327
2937	107	**3015**	306	**3093**	180	**3171**	61	**3249**	637	**3327**	200	**3405**	87	**3483**	124
2938	208	**3016**	359	**3094**	107	**3172**	587	**3250**	396	**3328**	391	**3406**	7	**3484**	129
2939	64	**3017**	494	**3095**	409	**3173**	561	**3251**	30	**3329**	210	**3407**	513	**3485**	274
2940	382	**3018**	550	**3096**	409	**3174**	609	**3252**	461	**3330**	401	**3408**	225	**3486**	19
2941	351	**3019**	37	**3097**	597	**3175**	332	**3253**	203	**3331**	112	**3409**	460	**3487**	105
2942	349	**3020**	590	**3098**	247	**3176**	395	**3254**	28	**3332**	427	**3410**	455	**3488**	239
2943	201	**3021**	237	**3099**	598	**3177**	544	**3255**	200	**3333**	61	**3411**	397	**3489**	323
2944	109	**3022**	547	**3100**	308	**3178**	197	**3256**	530	**3334**	120	**3412**	184	**3490**	544
2945	293	**3023**	147	**3101**	291	**3179**	460	**3257**	27	**3335**	268	**3413**	17	**3491**	218
2946	277	**3024**	332	**3102**	429	**3180**	209	**3258**	436	**3336**	378	**3414**	350	**3492**	*
2947	282	**3025**	391	**3103**	190	**3181**	194	**3259**	404	**3337**	382	**3415**	10	**3493**	360
2948	276	**3026**	158	**3104**	308	**3182**	137	**3260**	333	**3338**	417	**3416**	281	**3494**	160
2949	275	**3027**	306	**3105**	462	**3183**	364	**3261**	271	**3339**	259	**3417**	344	**3495**	127
2950	167	**3028**	595	**3106**	258	**3184**	97	**3262**	108	**3340**	399	**3418**	162	**3496**	428
2951	147	**3029**	265	**3107**	403	**3185**	63	**3263**	397	**3341**	435	**3419**	240	**3497**	184
2952	115	**3030**	64	**3108**	400	**3186**	510	**3264**	19	**3342**	300	**3420**	182	**3498**	469
2953	199	**3031**	627	**3109**	263	**3187**	189	**3265**	103	**3343**	264	**3421**	481	**3499**	297
2954	540	**3032**	347	**3110**	96	**3188**	329	**3266**	219	**3344**	376	**3422**	637	**3500**	63
2955	540	**3033**	104	**3111**	535	**3189**	274	**3267**	265	**3345**	285	**3423**	353	**3501**	419
2956	382	**3034**	282	**3112**	541	**3190**	64	**3268**	279	**3346**	258	**3424**	345	**3502**	381
2957	567	**3035**	421	**3113**	131	**3191**	609	**3269**	381	**3347**	330	**3425**	357	**3503**	437
2958	382	**3036**	627	**3114**	303	**3192**	608	**3270**	495	**3348**	479	**3426**	328	**3504**	292
2959	543	**3037**	333	**3115**	585	**3193**	304	**3271**	160	**3349**	61	**3427**	391	**3505**	86
2960	541	**3038**	106	**3116**	182	**3194**	193	**3272**	343	**3350**	47	**3428**	431	**3506**	149
2961	121	**3039**	155	**3117**	26	**3195**	554	**3273**	391	**3351**	417	**3429**	430	**3507**	19
2962	165	**3040**	24	**3118**	473	**3196**	144	**3274**	369	**3352**	436	**3430**	352	**3508**	16
2963	340	**3041**	340	**3119**	528	**3197**	563	**3275**	637	**3353**	126	**3431**	331	**3509**	293
2964	9	**3042**	157	**3120**	637	**3198**	148	**3276**	305	**3354**	170	**3432**	437	**3510**	448
2965	300	**3043**	339	**3121**	601	**3199**	587	**3277**	87	**3355**	375	**3433**	259	**3511**	143
2966	257	**3044**	340	**3122**	146	**3200**	349	**3278**	404	**3356**	428	**3434**	337	**3512**	559
2967	495	**3045**	421	**3123**	488	**3201**	80	**3279**	518	**3357**	280	**3435**	166	**3513**	550
2968	303	**3046**	335	**3124**	530	**3202**	543	**3280**	519	**3358**	28	**3436**	389	**3514**	502
2969	416	**3047**	100	**3125**	399	**3203**	585	**3281**	637	**3359**	423	**3437**	208	**3515**	60
2970	35	**3048**	101	**3126**	438	**3204**	440	**3282**	469	**3360**	420	**3438**	339	**3516**	31
2971	591	**3049**	245	**3127**	520	**3205**	243	**3283**	405	**3361**	397	**3439**	271	**3517**	209
2972	298	**3050**	350	**3128**	306	**3206**	48	**3284**	404	**3362**	23	**3440**	38	**3518**	300
2973	88	**3051**	16	**3129**	403	**3207**	376	**3285**	424	**3363**	129	**3441**	330	**3519**	144
2974	130	**3052**	104	**3130**	14	**3208**	164	**3286**	135	**3364**	322	**3442**	329	**3520**	235
2975	167	**3053**	392	**3131**	14	**3209**	171	**3287**	149	**3365**	189	**3443**	350	**3521**	376
2976	616	**3054**	422	**3132**	519	**3210**	215	**3288**	406	**3366**	208	**3444**	578	**3522**	439
2977	229	**3055**	254	**3133**	519	**3211**	503	**3289**	111	**3367**	382	**3445**	402	**3523**	64
2978	546	**3056**	113	**3134**	147	**3212**	227	**3290**	20	**3368**	360	**3446**	471	**3524**	60
2979	312	**3057**	352	**3135**	143	**3213**	359	**3291**	75	**3369**	110	**3447**	501	**3525**	236
2980	165	**3058**	286	**3136**	119	**3214**	199	**3292**	559	**3370**	166	**3448**	501	**3526**	266
2981	598	**3059**	341	**3137**	637	**3215**	567	**3293**	592	**3371**	208	**3449**	62	**3527**	489
2982	443	**3060**	350	**3138**	315	**3216**	552	**3294**	587	**3372**	355	**3450**	114	**3528**	331
2983	421	**3061**	627	**3139**	539	**3217**	604	**3295**	599	**3373**	28	**3451**	20	**3529**	471
2984	73	**3062**	357	**3140**	598	**3218**	316	**3296**	349	**3374**	46	**3452**	11	**3530**	63
2985	185	**3063**	339	**3141**	310	**3219**	146	**3297**	188	**3375**	246	**3453**	37	**3531**	226
2986	85	**3064**	358	**3142**	447	**3220**	25	**3298**	160	**3376**	75	**3454**	456	**3532**	225
2987	199	**3065**	394	**3143**	236	**3221**	40	**3299**	112	**3377**	454	**3455**	519	**3533**	437
2988	517	**3066**	338	**3144**	91	**3222**	552	**3300**	423	**3378**	490	**3456**	519	**3534**	425
2989	45	**3067**	273	**3145**	98	**3223**	137	**3301**	207	**3379**	490	**3457**	519	**3535**	48
2990	552	**3068**	421	**3146**	593	**3224**	549	**3302**	103	**3380**	325	**3458**	57	**3536**	436
2991	310	**3069**	434	**3147**	600	**3225**	255	**3303**	100	**3381**	76	**3459**	519	**3537**	326
2992	301	**3070**	360	**3148**	121	**3226**	310	**3303**	108	**3382**	384	**3460**	73	**3538**	510
2993	139	**3071**	192	**3149**	369	**3227**	147	**3305**	24	**3383**	163	**3461**	492	**3539**	343
2994	603	**3072**	403	**3150**	17	**3228**	317	**3306**	155	**3384**	518	**3462**	499	**3540**	260
2995	260	**3073**	518	**3151**	621	**3229**	601	**3307**	35	**3385**	114	**3463**	519	**3541**	192
2996	87	**3074**	590	**3152**	542	**3230**	64	**3308**	24	**3386**	86	**3464**	461	**3542**	49
2997	138	**3075**	566	**3153**	592	**3231**	304	**3309**	109	**3387**	408	**3465**	106	**3543**	15
2998	16	**3076**	613	**3154**	610	**3232**	237	**3310**	409	**3388**	479	**3466**	156	**3544**	272
2999	62	**3077**	143	**3155**	398	**3233**	538	**3311**	116	**3389**	387	**3467**	49	**3545**	298
3000	494	**3078**	113	**3156**	121	**3234**	145	**3312**	415	**3390**	239	**3468**	391	**3546**	370
3001	225	**3079**	365	**3157**	185	**3235**	246	**3313**	266	**3391**	98	**3469**	53	**3547**	288
3002	263	**3080**	234	**3158**	371	**3236**	617	**3314**	371	**3392**	379	**3470**	363	**3548**	286
3003	375	**3081**	558	**3159**	67	**3237**	342	**3315**	284	**3393**	380	**3471**	60	**3549**	378
3004	390	**3082**	162	**3160**	192	**3238**	536	**3316**	387	**3394**	281	**3472**	330	**3550**	122
3005	217	**3083**	611	**3161**	104	**3239**	560	**3317**	528	**3395**	384	**3473**	72	**3551**	94
3006	389	**3084**	299	**3162**	101	**3240**	605	**3318**	398	**3396**	289	**3474**	393	**3552**	134
3007	421	**3085**	185	**3163**	265	**3241**	567	**3319**	390	**3397**	173	**3475**	436	**3553**	14
3008	146	**3086**	186	**3164**	376	**3242**	491	**3320**	399	**3398**	326	**3476**	386	**3554**	128
3009	604	**3087**	202	**3165**	298	**3243**	510	**3321**	50	**3399**	354	**3477**	390	**3555**	334
3010	494	**3088**	146	**3166**	372	**3244**	321	**3322**	202	**3400**	596	**3478**	66	**3556**	150
3011	603	**3089**	74	**3167**	216	**3245**	370	**3323**	172	**3401**	223	**3479**	543	**3557**	272
3012	121	**3090**	546	**3168**	267	**3246**	520	**3324**	204	**3402**	131	**3480**	629	**3558**	394
3013	271	**3091**	15	**3169**	637	**3247**	513	**3325**	187	**3403**	534	**3481**	161	**3559**	103

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3560	359	**3638**	74	**3716**	244	**3794**	456	**3872**	270	**3950**	166	**4028**	371	**4106**	347
3561	349	**3639**	8	**3717**	189	**3795**	628	**3873**	258	**3951**	234	**4029**	321	**4107**	91
3562	344	**3640**	77	**3718**	150	**3796**	64	**3874**	271	**3952**	122	**4030**	253	**4108**	164
3563	355	**3641**	210	**3719**	208	**3797**	239	**3875**	289	**3953**	603	**4031**	543	**4109**	147
3564	323	**3642**	333	**3720**	207	**3798**	86	**3876**	324	**3954**	86	**4032**	371	**4110**	257
3565	430	**3643**	324	**3721**	349	**3799**	334	**3877**	270	**3955**	268	**4033**	566	**4111**	180
3566	20	**3644**	432	**3722**	127	**3800**	263	**3878**	398	**3956**	261	**4034**	551	**4112**	317
3567	166	**3645**	461	**3723**	390	**3801**	101	**3879**	124	**3957**	305	**4035**	542	**4113**	414
3568	227	**3646**	561	**3724**	89	**3802**	86	**3880**	296	**3958**	467	**4036**	23	**4114**	91
3569	125	**3647**	384	**3725**	41	**3803**	160	**3881**	279	**3959**	456	**4037**	432	**4115**	90
3570	308	**3648**	266	**3726**	238	**3804**	111	**3882**	265	**3960**	462	**4038**	529	**4116**	319
3571	40	**3649**	166	**3727**	157	**3805**	90	**3883**	401	**3961**	470	**4039**	322	**4117**	321
3572	244	**3650**	76	**3728**	338	**3806**	235	**3884**	270	**3962**	501	**4040**	342	**4118**	122
3573	296	**3651**	162	**3729**	20	**3807**	124	**3885**	280	**3963**	457	**4041**	283	**4119**	372
3574	401	**3652**	126	**3730**	277	**3808**	426	**3886**	301	**3964**	468	**4042**	102	**4120**	256
3575	334	**3653**	458	**3731**	349	**3809**	341	**3887**	301	**3965**	510	**4043**	291	**4121**	322
3576	599	**3654**	493	**3732**	563	**3810**	58	**3888**	264	**3966**	467	**4044**	345	**4122**	318
3577	277	**3655**	208	**3733**	267	**3811**	346	**3889**	182	**3967**	467	**4045**	324	**4123**	172
3578	332	**3656**	204	**3734**	357	**3812**	350	**3890**	127	**3968**	466	**4046**	312	**4124**	91
3579	457	**3657**	401	**2735**	380	**3813**	227	**3891**	377	**3969**	461	**4047**	362	**4125**	256
3580	335	**3658**	431	**3736**	480	**3814**	342	**3892**	269	**3970**	51	**4048**	246	**4126**	90
3581	96	**3659**	326	**3737**	73	**3815**	199	**3893**	393	**3971**	463	**4049**	23	**4127**	166
3582	239	**3660**	203	**3738**	247	**3816**	428	**3894**	281	**3972**	463	**4050**	353	**4128**	568
3583	58	**3661**	520	**3739**	59	**3817**	347	**3895**	324	**3973**	460	**4051**	535	**4129**	361
3584	199	**3662**	349	**3740**	438	**3818**	299	**3896**	267	**3974**	473	**4052**	431	**4130**	228
3585	74	**3663**	431	**3741**	523	**3819**	224	**3897**	321	**3975**	227	**4053**	168	**4131**	318
3586	228	**3664**	520	**3742**	523	**3820**	122	**3898**	307	**3976**	61	**4054**	424	**4132**	318
3587	326	**3665**	519	**3743**	523	**3821**	134	**3899**	418	**3977**	342	**4055**	426	**4133**	255
3588	375	**3666**	184	**3744**	215	**3822**	297	**3900**	226	**3978**	481	**4056**	529	**4134**	319
3589	121	**3667**	89	**3745**	215	**3823**	72	**3901**	148	**3979**	50	**4057**	292	**4135**	319
3590	374	**3668**	512	**3746**	381	**3824**	294	**3902**	45	**3980**	466	**4058**	357	**4136**	318
3591	380	**3669**	93	**3747**	26	**3825**	540	**3903**	299	**3981**	460	**4059**	165	**4137**	201
3592	330	**3670**	262	**3748**	59	**3826**	226	**3904**	238	**3982**	47	**4060**	262	**4138**	189
3593	245	**3671**	272	**3749**	487	**3827**	202	**3905**	353	**3983**	463	**4061**	473	**4139**	88
3594	340	**3672**	193	**3750**	57	**3828**	272	**3906**	133	**3984**	65	**4062**	339	**4140**	414
3595	114	**3673**	210	**3751**	224	**3829**	371	**3907**	245	**3985**	62	**4063**	343	**4141**	371
3596	351	**3674**	181	**3752**	491	**3830**	494	**3908**	346	**3986**	462	**4064**	59	**4142**	123
3597	469	**3675**	129	**3753**	340	**3831**	286	**3909**	266	**3987**	356	**4065**	454	**4143**	543
3598	308	**3676**	442	**3754**	324	**3832**	318	**3910**	330	**3988**	508	**4066**	493	**4144**	191
3599	308	**3677**	190	**3755**	417	**3833**	403	**3911**	344	**3989**	495	**4067**	288	**4145**	372
3600	23	**3678**	437	**3756**	134	**3834**	22	**3912**	158	**3990**	481	**4068**	348	**4146**	370
3601	405	**3679**	460	**3757**	284	**3835**	343	**3913**	131	**3991**	471	**4069**	284	**4147**	417
3602	153	**3680**	348	**3758**	396	**3836**	287	**3914**	316	**3992**	161	**4070**	284	**4148**	88
3603	385	**3681**	93	**3759**	256	**3837**	300	**3915**	273	**3993**	320	**4071**	357	**4149**	91
3604	393	**3682**	296	**3760**	79	**3838**	198	**3916**	333	**3994**	46	**4072**	203	**4150**	614
3605	111	**3683**	522	**3761**	468	**3839**	182	**3917**	95	**3995**	320	**4073**	14	**4151**	593
3606	156	**3684**	34	**3762**	529	**3840**	302	**3918**	153	**3996**	321	**4074**	23	**4152**	371
3607	435	**3685**	40	**3763**	518	**3841**	280	**3919**	95	**3997**	317	**4075**	15	**4153**	372
3608	112	**3686**	190	**3764**	148	**3842**	318	**3920**	343	**3998**	321	**4076**	225	**4154**	361
3609	375	**3687**	449	**3765**	551	**3843**	75	**3921**	173	**3999**	325	**4077**	355	**4155**	317
3610	171	**3688**	530	**3766**	322	**3844**	79	**3922**	427	**4000**	321	**4078**	429	**4156**	372
3611	110	**3689**	527	**3767**	347	**3845**	50	**3923**	239	**4001**	256	**4079**	494	**4157**	57
3612	171	**3690**	185	**3768**	301	**3846**	198	**3924**	317	**4002**	371	**4080**	482	**4158**	273
3613	187	**3691**	103	**3769**	377	**3847**	123	**3925**	126	**4003**	106	**4081**	113	**4159**	316
3614	183	**3692**	530	**3770**	198	**3848**	295	**3926**	385	**4004**	565	**4082**	65	**4160**	283
3615	154	**3693**	205	**3771**	192	**3849**	243	**3927**	122	**4005**	565	**4083**	65	**4161**	87
3616	204	**3694**	449	**3772**	192	**3850**	63	**3928**	376	**4006**	593	**4084**	262	**4162**	91
3617	204	**3695**	206	**3773**	399	**3851**	62	**3929**	350	**4007**	120	**4085**	463	**4163**	285
3618	102	**3696**	399	**3774**	377	**3852**	404	**3930**	338	**4008**	321	**4086**	58	**4164**	286
3619	229	**3697**	403	**3775**	149	**3853**	403	**3931**	235	**4009**	253	**4087**	58	**4165**	130
3620	218	**3698**	294	**3776**	377	**3854**	289	**3932**	407	**4010**	317	**4088**	41	**4166**	165
3621	193	**3699**	523	**3777**	186	**3855**	287	**3933**	120	**4011**	303	**4089**	469	**4167**	547
3622	200	**3700**	148	**3778**	150	**3856**	295	**3934**	267	**4012**	541	**4090**	51	**4168**	237
3623	269	**3701**	121	**3779**	290	**3857**	322	**3935**	316	**4013**	541	**4091**	482	**4169**	471
3624	107	**3702**	418	**3780**	57	**3858**	299	**3936**	316	**4014**	361	**4092**	77	**4170**	193
3625	192	**3703**	489	**3781**	149	**3859**	21	**3937**	121	**4015**	318	**4093**	64	**4171**	226
3626	14	**3704**	328	**3782**	152	**3860**	307	**3938**	320	**4016**	137	**4094**	109	**4172**	402
3627	190	**3705**	85	**3783**	545	**3861**	17	**3939**	93	**4017**	144	**4095**	502	**4173**	542
3628	106	**3706**	114	**3784**	319	**3862**	58	**3940**	95	**4018**	372	**4096**	391	**4174**	302
3629	210	**3707**	384	**3785**	326	**3863**	11	**3941**	383	**4019**	369	**4097**	433	**4175**	124
3630	459	**3708**	550	**3786**	277	**3864**	244	**3942**	424	**4020**	319	**4098**	429	**4176**	85
3631	19	**3709**	342	**3787**	278	**3865**	242	**3943**	327	**4021**	509	**4099**	353	**4177**	540
3632	241	**3710**	274	**3788**	268	**3866**	289	**3944**	337	**4022**	414	**4100**	386	**4178**	11
3633	77	**3711**	327	**3789**	238	**3867**	324	**3945**	379	**4023**	99	**4101**	382	**4179**	255
3634	458	**3712**	186	**3790**	94	**3868**	133	**3946**	240	**4024**	147	**4102**	152	**4180**	530
3635	25	**3713**	159	**3791**	329	**3869**	95	**3947**	348	**4025**	147	**4103**	433	**4181**	542
3636	241	**3714**	400	**3792**	240	**3870**	265	**3948**	155	**4026**	537	**4104**	350	**4182**	601
3637	520	**3715**	296	**3793**	242	**3871**	343	**3949**	152	**4027**	540	**4105**	23	**4183**	590

Spec.	Page.	Spec.	Page.	Spec.	Page.	Spec.	Page.	Spec.	Page.	Spec.	Page.	Spec.	Page.	Spec.	Page.
4184	478	**4251**	546	**4318**	557	**4385**	41	**4452**	628	**4519**	596	**4586**	585	**4653**	578
4185	554	**4252**	569	**4319**	562	**4386**	248	**4453**	621	**4520**	595	**4587**	586	**4654**	584
4186	182	**4253**	569	**4320**	549	**4387**	392	**4454**	621	**4521**	593	**4588**	585	**4655**	578
4187	546	**4254**	569	**4321**	545	**4388**	127	**4455**	621	**4522**	592	**4589**	585	**4656**	578
4188	557	**4255**	10	**4322**	544	**4389**	488	**4456**	587	**4523**	596	**4590**	585	**4657**	594
4189	502	**4256**	24	**4323**	559	**4390**	488	**4457**	588	**4524**	607	**4591**	586	**4658**	584
4190	332	**4257**	31	**4324**	553	**4391**	621	**4458**	586	**4525**	605	**4592**	585	**4659**	584
4191	568	**4258**	225	**4325**	549	**4392**	604	**4459**	588	**4526**	592	**4593**	619	**4660**	586
4192	99	**4259**	99	**4326**	539	**4393**	604	**4460**	588	**4527**	595	**4594**	585	**4661**	586
4193	405	**4260**	102	**4327**	398	**4394**	604	**4461**	608	**4528**	594	**4595**	585	**4662**	586
4194	11	**4261**	155	**4328**	398	**4395**	599	**4462**	591	**4529**	591	**4596**	586	**4663**	586
4195	135	**4262**	163	**4329**	397	**4396**	603	**4463**	590	**4530**	594	**4597**	586	**4664**	586
4196	297	**4263**	115	**4330**	397	**4397**	601	**4464**	608	**4531**	598	**4598**	586	**4665**	584
4197	501	**4264**	162	**4331**	458	**4398**	607	**4465**	608	**4532**	594	**4599**	589	**4666**	628
4198	502	**4265**	163	**4332**	81	**4399**	605	**4466**	612	**4533**	607	**4600**	589	**4667**	495
4199	339	**4266**	208	**4333**	137	**4400**	604	**4467**	591	**4534**	591	**4601**	589	**4668**	625
4200	560	**4267**	238	**4334**	400	**4401**	605	**4468**	601	**4535**	593	**4602**	589	**4669**	625
4201	258	**4268**	274	**4335**	397	**4402**	611	**4469**	612	**4536**	601	**4603**	589	**4670**	625
4202	274	**4269**	273	**4336**	398	**4403**	612	**4470**	612	**4537**	607	**4604**	589	**4671**	628
4203	538	**4270**	353	**4337**	405	**4404**	602	**4471**	597	**4538**	588	**4605**	589	**4672**	625
4204	513	**4271**	261	**4338**	139	**4405**	599	**4472**	597	**4539**	595	**4606**	586	**4673**	625
4205	332	**4272**	391	**4339**	459	**4406**	612	**4473**	597	**4540**	373	**4607**	589	**4674**	625
4206	34	**4273**	429	**4340**	469	**4407**	590	**4474**	415	**4541**	440	**4608**	586	**4675**	629
4207	378	**4274**	209	**4341**	258	**4408**	599	**4475**	602	**4542**	591	**4609**	585	**4676**	629
4208	89	**4275**	291	**4342**	95	**4409**	611	**4476**	593	**4543**	413	**4610**	589	**4677**	629
4209	199	**4276**	425	**4343**	97	**4410**	604	**4477**	601	**4544**	394	**4611**	583	**4678**	629
4210	578	**4277**	609	**4344**	6	**4411**	611	**4478**	604	**4545**	423	**4612**	584	**4679**	629
4211	102	**4278**	85	**4345**	53	**4412**	602	**4479**	601	**4546**	395	**4613**	584	**4680**	627
4212	335	**4279**	614	**4346**	63	**4413**	601	**4480**	590	**4547**	373	**4614**	620	**4681**	629
4213	240	**4280**	588	**4347**	304	**4414**	608	**4481**	612	**4548**	422	**4615**	620	**4682**	633
4214	277	**4281**	309	**4348**	5	**4415**	611	**4482**	591	**4549**	605	**4616**	583	**4683**	633
4215	356	**4282**	103	**4349**	307	**4416**	597	**4483**	605	**4550**	606	**4617**	583	**4684**	633
4216	430	**4283**	191	**4350**	106	**4417**	595	**4484**	591	**4551**	606	**4618**	584	**4685**	633
4217	431	**4284**	183	**4351**	36	**4418**	611	**4485**	592	**4552**	596	**4619**	584	**4686**	633
4218	563	**4285**	184	**4352**	137	**4419**	600	**4486**	602	**4553**	591	**4620**	589	**4687**	633
4219	293	**4286**	192	**4353**	402	**4420**	612	**4487**	616	**4554**	601	**4621**	589	**4688**	633
4220	310	**4287**	154	**4354**	405	**4421**	602	**4488**	591	**4555**	606	**4622**	592	**4689**	633
4221	294	**4288**	49	**4355**	570	**4422**	612	**4489**	587	**4556**	312	**4623**	613	**4690**	633
4222	402	**4289**	157	**4356**	538	**4423**	612	**4490**	606	**4557**	59	**4624**	593	**4691**	633
4223	466	**4290**	298	**4357**	534	**4424**	600	**4491**	595	**4558**	606	**4625**	589	**4692**	586
4224	465	**4291**	124	**4358**	554	**4425**	613	**4492**	587	**4559**	625	**4626**	611	**4693**	597
4225	400	**4292**	133	**4359**	561	**4426**	602	**4493**	421	**4560**	625	**4627**	573	**4694**	616
4226	136	**4293**	610	**4360**	536	**4427**	616	**4494**	416	**4561**	595	**4628**	574	**4695**	597
4227	241	**4294**	598	**4361**	551	**4428**	613	**4495**	627	**4562**	606	**4629**	575	**4696**	633
4228	348	**4295**	609	**4362**	541	**4429**	616	**4496**	603	**4563**	608	**4630**	579	**4697**	508
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4232	355	**4299**	556	**4366**	548	**4433**	598	**4500**	593	**4567**	608	**4634**	577	**4701**	568
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4235	180	**4302**	560	**4369**	563	**4436**	605	**4503**	588	**4570**	599	**4637**	577	**4704**	628
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4237	248	**4304**	558	**4371**	558	**4438**	612	**4505**	607	**4572**	613	**4639**	577	**4706**	510
4238	296	**4305**	561	**4372**	557	**4439**	617	**4506**	605	**4573**	613	**4640**	577	**4707**	332
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4241	278	**4308**	557	**4375**	556	**4442**	621	**4509**	587	**4576**	422	**4643**	577	**4710**	617
4242	407	**4309**	560	**4376**	546	**4443**	620	**4510**	373	**4577**	423	**4644**	577	**4711**	522
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4245	390	**4312**	559	**4379**	534	**4446**	628	**4513**	588	**4580**	419	**4647**	578	**4714**	628
4246	52	**4313**	561	**4380**	540	**4447**	628	**4514**	593	**4581**	585	**4648**	578	**4715**	607
4247	305	**4314**	550	**4381**	537	**4448**	628	**4515**	594	**4582**	585	**4649**	578	**4716**	615
4248	428	**4315**	559	**4382**	280	**4449**	628	**4516**	587	**4583**	585	**4650**	578	**4717**	628
4249	159	**4316**	561	**4383**	320	**4450**	628	**4517**	599	**4584**	585	**4651**	579	**4718**	627
4250	404	**4317**	552	**4384**	29	**4451**	628	**4518**	607	**4585**	585	**4652**	578	**4719**	576

* **2231, 2903** and **3492** represent Specimens that were discarded, and whose places, by an oversight, were not filled before the text of the Catalogue was printed. These numbers are now occupied by Specimens subsequently obtained.

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